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How not to fight a war

Q&A: Dr Mike Martin

The Machine Gun Corps

Origins and legacy

SHERMAN

MAKING OF A WAR WINNER

From prototype to frontline spearhead: How the M4 became the Allies' most successful yet controversial tank

T.E. LAWRENCE

Follow in the footsteps of Britain's complicated hero

SHIROYAMA 1877

Last stand of the samurai and the rise of Imperial Japan

THE DEVIL'S PORRIDGE

Inside Britain's biggest and most hazardous Great War factory

FUTURE
ISSUE 116

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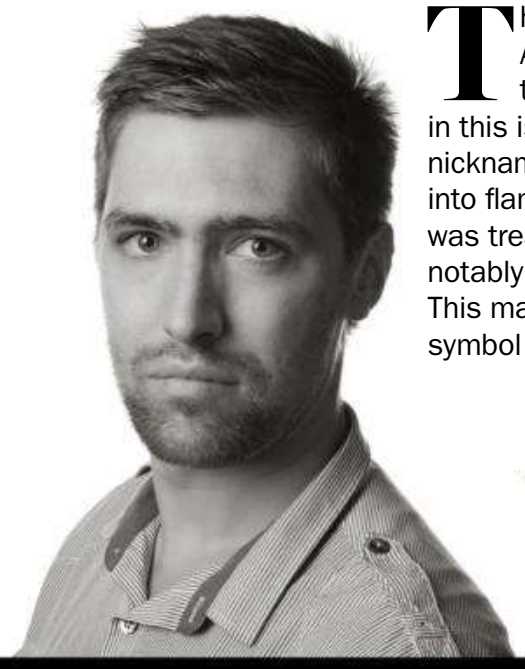
The Sherman's design remains the subject of fierce debate to this day

SCAN TO GET OUR WEEKLY NEWSLETTER

Welcome



The M4 Sherman was the most prolific tank deployed by the Western Allies, and served across all the major theatres of WWII, including the Eastern Front. However, as historian Michael Haskew unpacks in this issue, the M4 was far from a perfect design. It even earned the nickname 'Tommy Cooker' due to the reported ease with which it burst into flames after receiving penetrating hits. Nonetheless, the design was treated to a litany of modifications across a range of versions, most notably part of 'Hobart's Funnies' and Britain's up-gunned Firefly variant. This made it a highly adaptable and effective weapon, and an iconic symbol of the eventual victory over the Axis powers.

Tim Williamson
Editor-in-Chief

CONTRIBUTORS

CRAIG MOORE

Craig is a writer, historian and editor of the website *Tank Encyclopedia*. This issue he breaks down the M18 'Hellcat' tank destroyer (p60). Over on page 34 he also recounts the hazardous task WWI munitions workers faced handling 'The Devil's Porridge'.

MIGUEL MIRANDA

This month Miguel takes a look at the Battle of Shiroyama, the last battle of the 1877 Satsuma Rebellion. Outnumbered and outgunned, a rebel samurai army made their last stand against the imperial forces of the Meiji government (p40).

DR MIKE MARTIN

Mike is a former British Army officer, currently a senior research fellow at King's College London's Department of War Studies, and the author of *Why We Fight*. This issue he spoke to *History of War* about his latest book *How to Fight a War*, which will be released March 2023 (p68).

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The new specialist corps was formed to suit the static warfare of the Western Front

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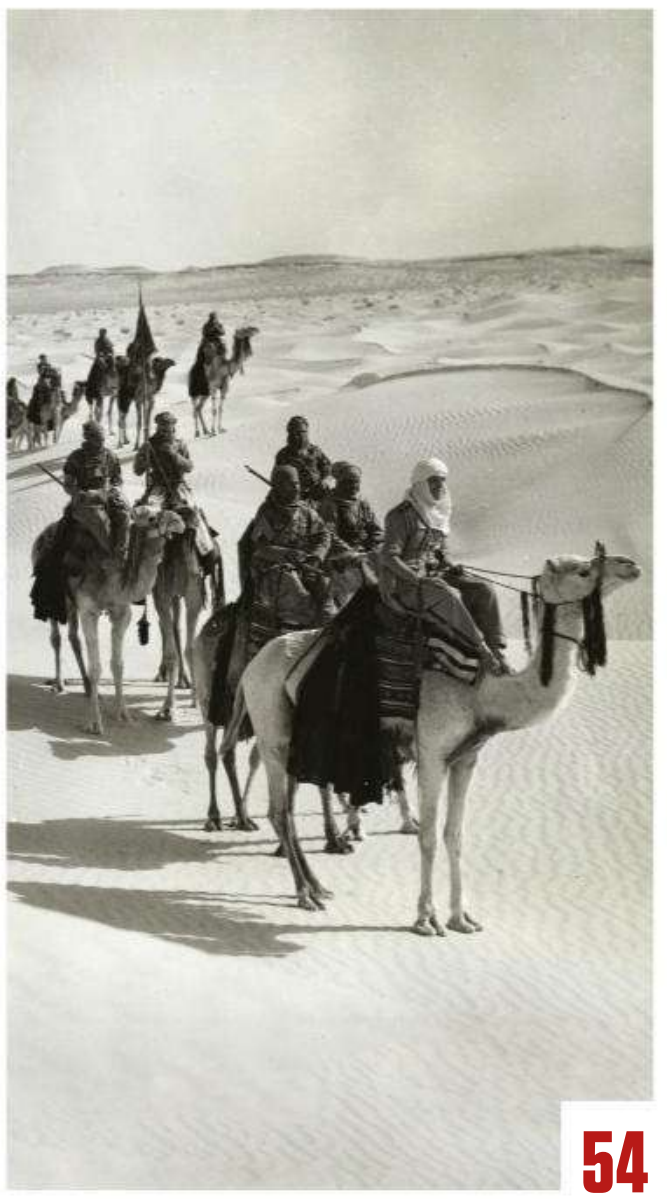
This tank destroyer came late in the war, but excelled at hunting panzers in occupied Europe



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WAR in FOCUS

SHOULDER ARMS

1918

Charlie Chaplin sits with other soldiers in a dugout scene from his 1918 silent comedy *Shoulder Arms*. Set sometime during WWI, the film depicts Chaplin as Doughboy, a military variation of his famous Tramp character. Believed to be the first comedy about war, *Shoulder Arms* was Chaplin's most critically acclaimed film up to that point. He faced criticism for not joining the armed forces of America or his native Britain but his films were immensely popular with serving Allied soldiers.

© Getty

CAFE
CHERBOURG
Périers 18 Km
Cherbourg
30 Km
A L'Heure

WAR in FOCUS

PATROLLING CARENTAN

15 June 1944

American paratroopers patrol the French town of Carentan in a captured German vehicle while other US soldiers rest against a building. This photograph was taken the day after the end of the Battle of Carentan, which was fought from 10-14 June 1944 during the Normandy Campaign. American airborne forces had fought the Wehrmacht for possession of the town, which was strategically important for securing Omaha and Utah Beaches against German counterattacks. This crucial action was later portrayed in the acclaimed 2001 TV miniseries *Band of Brothers*.

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WAR in FOCUS

TOPPLING SADDAM

2 April 2003

Royal Engineers pose next to a statue of Saddam Hussein they have toppled and decapitated in the Iraqi city of Az Zubayr, Basra Governorate. Photographed during the invasion of Iraq, these troops were part of the British 25 (Close Support) Engineer Group that was attached to 2nd Battalion, Royal Tank Regiment. After taking the city of Basra itself after heavy fighting, the British-led Multi-National Division (South-East) spent much of April 2003 carrying out Security and Stabilisation missions in the rest of the Governorate.

TIMELINE OF THE...

MACHINE GUN CORPS

The British Army creates a new corps of machine gunners, that combines discipline and technology to contribute to Allied victory on the Western Front and beyond

OUTBREAK OF FIRST WORLD WAR

At the start of the war, the British Army has no dedicated unit for machine guns. It instead provides two machine guns for each infantry battalion or cavalry regiment. These are either heavy Maxim or Vickers machine guns.

1873

Two British Gatling gun teams pictured during the Second Anglo-Afghan War

EARLY MACHINE GUN USE

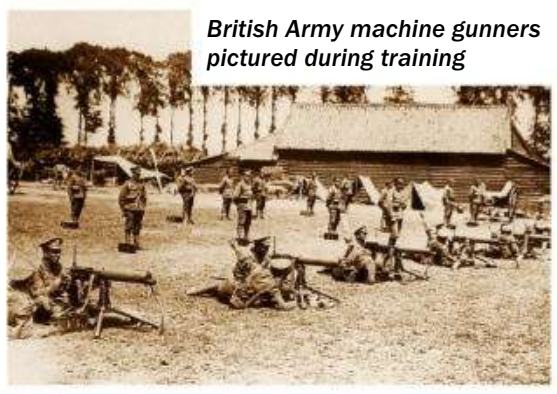
The British Army and Royal Navy use early Gatling and Maxim machine guns in colonial wars from the 1870s onwards. This includes the Third Anglo-Ashanti War (1873-74), Anglo-Zulu War (1879), Battle of Omdurman (1898) and the Second Boer War (1899 – 1902).

4 August 1914 – November 1914

MACHINE GUN SCHOOL 01

With the Western Front turning into a static stalemate, the British Army recognises the emerging dominance of the machine gun on the battlefield. It establishes a 'Machine Gun School' at Wisques in the Pas-de-Calais region of northern France.

British Army machine gunners pictured during training

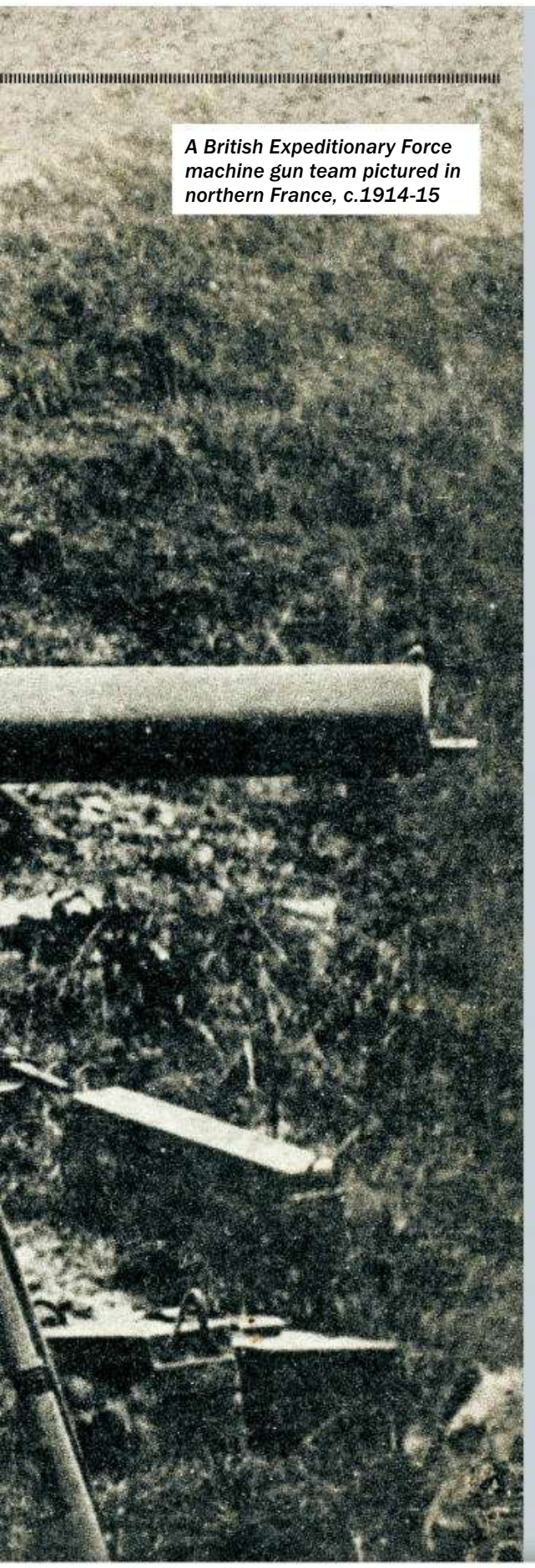


November 1914 – October 1915

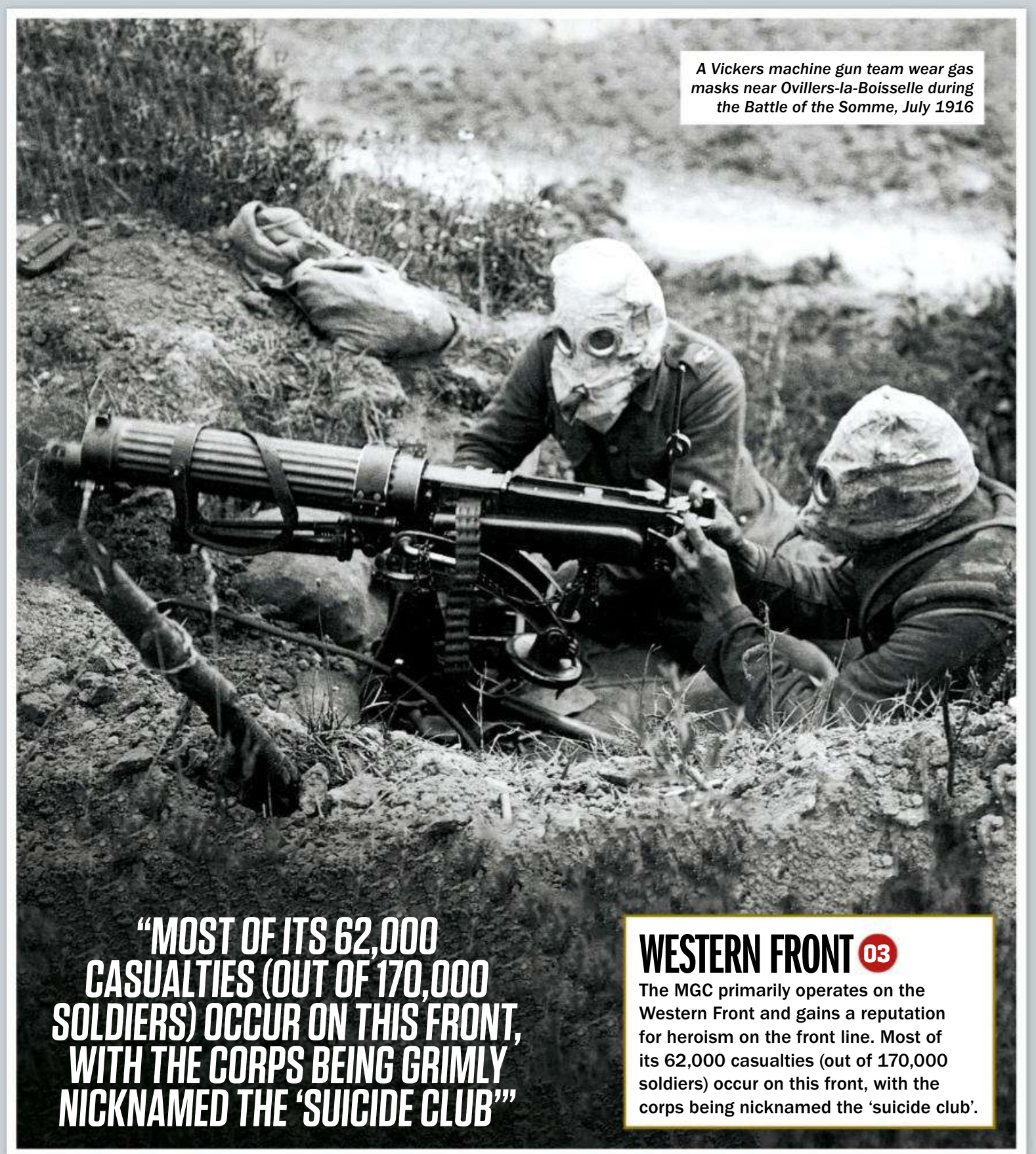
MOTOR MACHINE GUN SERVICE 02

Part of the Royal Field Artillery, the Motor Machine Gun Service consists of batteries of motorcycles with sidecars that carry Vickers machine guns. They see service at the Battles of Neuve Chapelle and Loos in March and September-October 1915.

A British Expeditionary Force Motor Machine Gun Service team



A British Expeditionary Force machine gun team pictured in northern France, c.1914-15



A Vickers machine gun team wear gas masks near Ovillers-la-Boisselle during the Battle of the Somme, July 1916

"MOST OF ITS 62,000 CASUALTIES (OUT OF 170,000 SOLDIERS) OCCUR ON THIS FRONT, WITH THE CORPS BEING GRIMLY NICKNAMED THE 'SUICIDE CLUB'"

WESTERN FRONT 03

The MGC primarily operates on the Western Front and gains a reputation for heroism on the front line. Most of its 62,000 casualties (out of 170,000 soldiers) occur on this front, with the corps being nicknamed the 'suicide club'.

October 1915

FORMATION

The Machine Gun Corps (MGC) is formed with Infantry, Cavalry and Motor branches. The Infantry is the largest branch, while the Motor branch absorbs the Motor Machine Gun Service and squadrons from the Royal Naval Armoured Car Service.

An officer and soldier of the Machine Gun Corps bring a captured German machine gun into position to use against the enemy

October 1915 – November 1918

1915-18

WORLDWIDE DEPLOYMENTS

The corps also operates across the world in different theatres where the British Army is fighting. This includes the Sinai-Palestine, Mesopotamian and East African Campaigns. They also fight in Italy and Bulgaria.

Kermit Roosevelt (left), son of US President Theodore Roosevelt, pictured while serving as an honorary captain with the Machine Gun Corps in Mesopotamia during 1917-18

Images © Alamy, Getty, Wiki / PD / Gov

MACHINE GUN SCHOOL 01

MOTOR MACHINE GUN SERVICE 02

WESTERN FRONT 03

BATTLE OF FLERS-COURCELETTE 04

SPRING OFFENSIVE HEROISM 05

HUNDRED DAYS OFFENSIVE 06

POST-WAR SERVICE 07

WESTERN FRONT CAMPAIGNS

English Miles 0 10 20 30 40 50

Kilometres 0 10 20 30 40 50

Limit of German Advance Sept. 6, 1914
Approx. Front Line Oct. 14–Nov. 16, „
Front Line July 15, 1918
Front Line Nov. 11, 1918.
Direction of Allied Attacks Sept. 1918
Main Railways

1915-18

ARMOURED CARS

The corps successfully uses Rolls-Royce Armoured Cars in the Middle East, where warfare is more mobile than the Western Front. They are most famously used by TE Lawrence, aka 'Lawrence of Arabia'.

The Rolls-Royce Armoured Car is armed with a Vickers machine gun, weighs 4.7 tonnes and has a top speed of 72 km/h (45mph)

1916-17

British Mark I 'Male' tanks are armed with three .303 Hotchkiss machine guns

HEAVY BRANCH

A Heavy Section of the corps is formed in May 1916 and becomes a branch in November that year. Members of the Heavy Branch separate from the MGC to form the Tank Corps in July 1917.

15-22 September 1916

BATTLE OF FLERS-COURCELETTE 04

Soldiers of C and D Companies, Heavy Branch, man the first tanks to be taken into action, at the Battle of Flers-Courcelette during the Battle of the Somme. Their initial effectiveness is debatable but their appearance changes the course of modern warfare.

A British brigadier and his staff pose in front of Tank 17 of D Company, Heavy Branch

SPRING OFFENSIVE HEROISM 05

During Operation Michael, the early stage of the German spring offensive, three members of the corps (Allan Ker, Herbert Columbine and Arthur Cross) are awarded the Victoria Cross for actions between 21-25 March 1918.

Heavy artillery shells landing during the German spring offensive, 1918

Arthur Cross is awarded the Victoria Cross for "extreme gallantry, initiative and dash"

DISBANDMENT

As a cost-cutting measure, the MGC is disbanded. The British Army reverts to its pre-war system of having a machine gun platoon in each infantry or cavalry regiment. Despite existing for only seven years, the corps has been awarded seven Victoria Crosses.

The Machine Gun Corps Memorial at Hyde Park Corner, London, commemorates the 15,552 soldiers who were killed serving in the corps during WWI

POST-WAR SERVICE 07

The MGC takes part in the Allied Occupation of the Rhineland after WWI and continues to see overseas active service during the Russian Civil War, Third Anglo-Afghan War and the Northwest Frontier of India.

British soldiers pictured with a machine gun on a Dublin rooftop during the Irish War of Independence, c.1920

March 1918 | 1918-22

21-22 April 1917 | 8 August – 11 November 1918 | 1922

BATTLE OF ISTABULAT

Lieutenant John Reginald Graham of 136th Company is awarded the only MGC Victoria Cross beyond the Western Front, at the Battle of Istabulat during the Mesopotamian Campaign. The corps is awarded its other VCs in France and Belgium.

British and Indian machine gunners pictured in Mesopotamia in 1917

HUNDRED DAYS OFFENSIVE 06

With the ending of the trench stalemate on the Western Front, the Motor Branch batteries of the Machine Gun Corps are able to come into their own. This includes the use of motorcycles and armoured cars that participate in the sudden mobile warfare.

General Sir Henry Horne inspects the 24th Motor Machine Gun Battalion at Diéval, France, 12 June 1918

Images © Alamy, Getty, Wiki / PD / Gov

‘WE HAVE THE MAXIM’

Early machine guns were used by British forces during the ‘Scramble for Africa’ but the British Army was slow to fully realise their lethal potential

The quest to create a rapid-firing gun had been underway since medieval times but it was not until the 19th century that machine guns came into being. In 1861, American inventor Richard Gatling patented the Gatling gun, which was the first firearm to offer controlled, sequential firing with mechanical loading. Gatling guns were first used in the American Civil War (1861-65) and Franco-Prussian War (1870-71).

The British Army deployed the Gatling gun for the first time in what is now Ghana during the Third Anglo-Ashanti War (1873-74). A British force commanded by General Sir Garnet Wolseley utilised new technologies such as telegraph lines, rockets and Martini-Henry rifles against Ashanti warriors, although it appears that his Gatling guns were not extensively used.

The Gatling became a part of the British Army’s arsenal during subsequent colonial conflicts. This included the Second Anglo-Afghan War (1878-80) and – most significantly – the Anglo-Zulu War of 1879. Although most famous for the Battles of Isandlwana and Rorke’s Drift, the most decisive battle was the concluding engagement at the Zulu capital of Ulundi.

The British and Natal soldiers commanded by Major General Lord Chelmsford numbered 5,200 men compared to 12,000-15,000 Zulu warriors. However, they were armed with two Gatling guns that accompanied ten cannons as part of the artillery train. These were considered defensive weapons and when Chelmsford’s force formed into a tight infantry square the Zulus faced concentrated rifle and artillery fire. The Gatling guns were fired but they frequently jammed, although the British won the battle with only 13-18 soldiers killed compared to 473 Zulus.

Maxim battles

In 1884, the Gatling was overtaken in technological superiority when the American-British inventor Hiram Maxim patented the first fully automatic machine gun. Described by historian Sir Martin Gilbert as “the weapon most associated with imperial conquest”, the Maxim gun was used by the major colonial powers, particularly during the ‘Scramble for Africa’.

Born in Maine, Maxim had emigrated to Britain in 1881 and designed his machine gun in West Norwood, London. After founding an arms company, he manufactured the weapon in Kent. Despite its British origin, the Maxim was first acquired by German imperial forces in East Africa to suppress the Abushiri Revolt of 1888-89.

It wasn’t until nearly ten years after the Maxim had been invented that the British extensively used it in battle, and even then it wasn’t by the British Army. During the First Matabele War (1893-94) in Rhodesia a force of 700 pioneers from the British South Africa Police encountered 5,000 Matabele warriors at the Battle of the Shangani on 25 October 1893. The pioneers’ heavy weapons included five Maxims, which were used to deadly effect for the first time in battle. An eyewitness recalled that the British were “mowing them (the Matabele) down literally like grass” even though the warriors were armed with Martini-Henry rifles.

By the time the battle ended, 1,500 Matabele had been killed compared to only four British pioneers. The effectiveness of the Maxim was clear, with the pioneers winning another battle at Bembezi one week after Shangani. Around 2,500 Matabele were killed at Bembezi – a shocking figure that confirmed the machine gun’s disproportionate ability to cause huge battlefield casualties.

The first war in which the British Army used Maxim guns was the Anglo-Egyptian Conquest of Sudan (1896-99). They were used extensively at the Battle of Omdurman on 2 September 1898 when 25,800 British, Egyptian and Sudanese soldiers faced 52,000 Mahdist warriors near Khartoum. Twenty-four Maxims contributed to horrendous Mahdist casualties: 12,000 were killed and 13,000 wounded compared to fewer than 50 Anglo-Egyptian fatalities. GW Steevens, a *Daily Mail* war correspondent, described Omdurman as “not a battle, but an execution”.

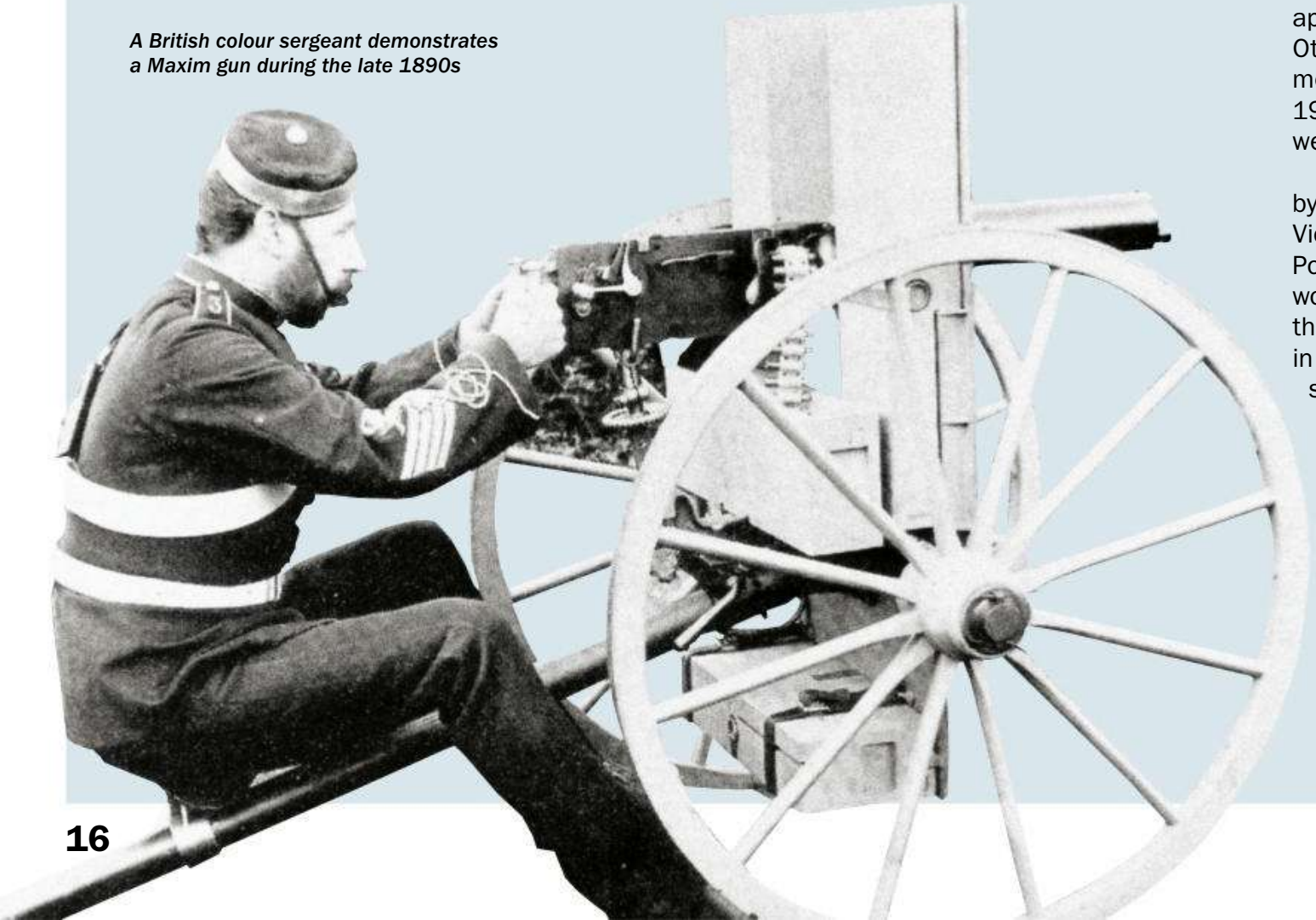
The Maxim became associated with the rise of imperial jingoism in the British public’s imagination. This was epitomised by the 1898 poem *The Modern Traveller* in which Franco-British writer Hilaire Belloc boasted about the British soldiers’ advantage against their African opponents: “Whatever happens, we have got/ The Maxim gun, and they have not.”

Army hubris

The Maxim was a significant factor in Britain’s imperial conquests in Africa during the 1890s but there remained slowness within the army to appreciate the full impact of the machine gun. Other industrial nations were producing new models and during the Second Boer War (1899-1902) the British Army found itself fighting well-equipped Boer commandos.

Hiram Maxim’s company had been bought out by Sheffield-based Vickers in 1897 and it was Vickers-Maxim who sold the QF 1-pounder ‘Pom-Pom’ to the Transvaal government. This was the world’s first auto-cannon – a large machine gun that could fire shells rather than bullets – but in 1894 the British Army had rejected it. British soldiers consequently found themselves being fired upon by effective Boer Pom-Poms in various battles during 1899. It wasn’t until 1900 that Vickers-Maxim shipped over 50 Pom-Poms to the British in South Africa.

Despite the British receiving a bloody nose against the Boers’ Pom-Poms, machine guns continued to only be supplied to battalions or regiments. It would take WWI to persuade the army to create a specialised machine gun unit, which ultimately became the Machine Gun Corps.



A British colour sergeant demonstrates a Maxim gun during the late 1890s

Images © Alamy

British sailors use a Gatling gun in the fight for Alexandria during the occupation of Egypt in 1882

INFANTRY BRANCH

Of the three branches of the Machine Gun Corps, the largest was the Infantry. Initially formed in each infantry brigade, a machine gun company took on the role of machine gun support to the infantry battalions

Until the formation of the Machine Gun Corps (MGC), each infantry battalion had its own machine gun section under the command of a machine gun officer attached to the battalion headquarters. At the start of the Great War, there were only two machine guns (either Maxim or Vickers) in the machine gun section but the development of the war showed that this needed increasing and it was decided to add a further two guns, with the section divided into two sub-sections of two guns each.

In an infantry brigade, a specialist officer attached to brigade headquarters coordinated the machine guns of the infantry battalions and sometimes 'brigaded' these guns together. In doing so, he was able to consolidate and control the fire of 16 guns. It is this structure that carried on into the brigade machine gun companies when the MGC was formed in October 1915.

As the MGC took on the machine guns (eventually all Vickers) and often the men of the machine gun sections from an infantry battalion (excluding the Guards regiments), they became a critical part of the infantry brigade's activities. They would often be 'attached' to an infantry battalion as a section so they would have good relationships with the officers and men of the battalion they worked with regularly – this would sometimes be the very battalion that men had transferred from,so little changed for them. In defensive positions, they would coordinate with the Lewis guns of the infantry battalions. When there was a set-piece battle or operation, the whole company, and sometimes several companies, could work to provide the large volumes of fire that came to typify machine gunnery of World War I.

An infantry machine gun section still heavily relied on horse-drawn limbered wagons. Each wagon carried both guns of a sub-section and there was a third wagon just for ammunition. Therefore each section had 32,000 rounds of ammunition for their four Vickers.

It was the ammunition supply that controlled the development of machine gunnery during the Great War. Only when relatively unlimited supplies were available was it possible to conduct the large machine gun barrages in conjunction with the artillery. The most extensive was conducted by the Canadian Machine Gun Corps, with British machine gun companies attached, during the Battle of Vimy Ridge in 1917. In this battle, 362 Vickers were

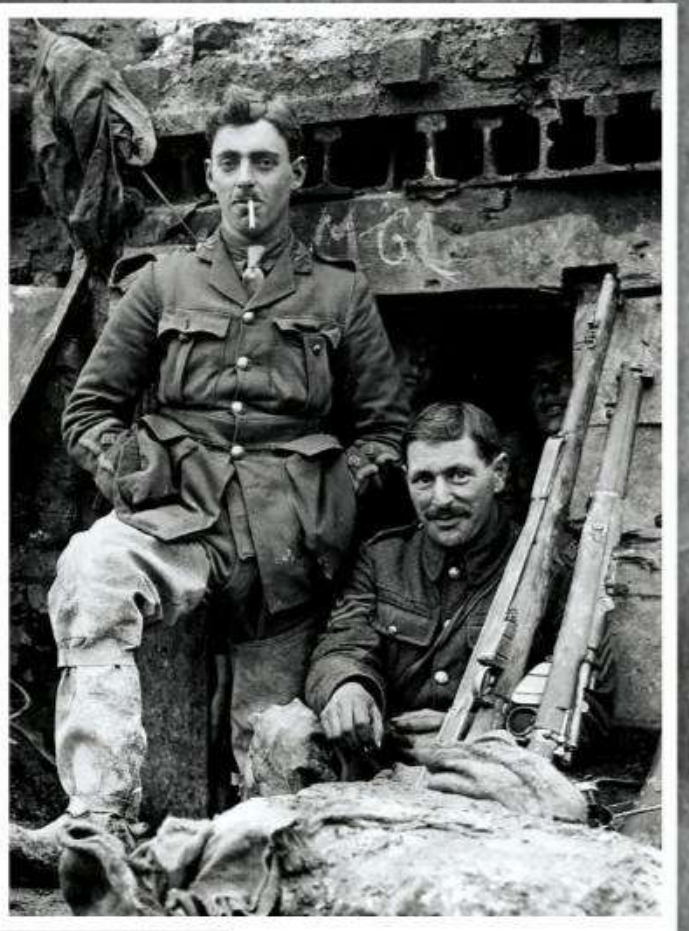
Images © Alamy

used: 104 in the mobile role to go forward with the attack and 258 in the barrage roles firing in support. This barrage had 4,976,000 rounds of ammunition available.

Depending on the task, there were different rates of fire: rapid (one belt of 250 rounds per gun every minute) for emergency tasks and an initial shock for attacks; normal (one belt per gun every two minutes) for routine tasks; and slow (one belt every four minutes) for the maximum barrage effect. There was also a barrage rate introduced to conserve ammunition even more and this fired one belt every ten minutes, which would mean the water in the barrel casing would not boil, like it would with the faster rates of fire.

As the war progressed, it was necessary to add a fourth machine gun company to the infantry division. This was a divisional reserve and could be used for exchanging a brigade company in need of rest or provide extra supporting fire for operations or emergencies. While many of the brigade companies had been trained 'on the job', these divisional companies were formed at the Machine Gun Training Centre for infantry at Grantham, Lincolnshire, and sent as complete units. They may have included experienced officers and men that had been re-trained but they didn't have the same relationships as the other companies and the battalions. This increased the number of Vickers guns in a division to 64 but they were in four separate companies, possibly with a divisional machine gun officer trying to co-ordinate them for operations. By 1918, they were amalgamated into a machine gun battalion. For example, the 19th, 98th and 100th brigade machine gun companies formed in 1916 were supplemented by the 248th in 1917 and then formed into the 33rd Battalion in March 1918.

As the end of war drew closer, machine gunners came into higher demand and whole Yeomanry regiments were converted to Infantry branch machine gun battalions and kept as Army and Corps reserve units. At its peak in October 1918, the Infantry branch had 120,772 men (from the Official Statistics of the Great War). There were nearly 290 companies and around 80 battalions formed during the war.



Men from the Machine Gun Corps at a captured German position in Beaumont-Hamel, November 1916

A Machine Gun Corps post in a barn near Haverskerque during the Battle of the Lys, April 1918

MOUNTED & MOTORISED

In October 1915 the Cavalry and Motor branches were created to be more mobile than the infantry brigade companies

In each cavalry brigade, a brigade machine gun squadron was formed in a similar format to the infantry company – the machine gun section of a cavalry regiment, their machine guns and men, were used to form the new company. There were only three cavalry regiments in a brigade and each of the sections, so a machine gun squadron had three-quarters of the firepower of its infantry equivalent. They were organised into six sections of two guns each so there was more flexibility to support the half-squadrons being used.

Cavalry machine guns were moved by limbered wagon but they were able to use their packsaddlery to move alongside the squadrons of the cavalry regiments they supported (infantry companies did also have packsaddlery but this was considered an aid for moving over difficult terrain rather than keeping up with the supported troops).

"IT WAS AN IDEAL ORGANISATION TO 'PARENT' THE HEAVY BRANCH OF THE MACHINE GUN CORPS"

As they were part of the cavalry divisions, they were often kept as part of the exploitation reserve; however, they did supply guns for barrage fire tasks or to supplement infantry guns as part of a larger attack. They did not have the ability to use men or horses from cavalry regiments as additional ammunition bearers (as it needed the special packsaddlery) so could not carry out these barrages on their own, yet they

Image © Alamy

could move quickly forward with their guns to consolidate positions and provide direct fire support. Of the seven Machine Gun Corps Victoria Crosses, two were awarded to men of the Cavalry branch – Herbert Columbine and Harold Mugford.

Men of the Machine Gun Corps (Cavalry) were trained separately to those of the infantry and had their training centre at Maresfield Park, near Crowborough in East Sussex. They did, however, share the same 'base depots' in the different theatres of war, where they would pass through, or in which soldiers awaiting assignment to units would be held.

Much smaller in size, with around 26 formed squadrons, they did not amalgamate further in 1918 and several were disbanded after fighting as infantry in the battles of March 1918. Nearing the war's end, they numbered only 8,072 in the whole branch.

The third branch of the Machine Gun Corps formed in 1915 was the Motors branch. This was actually an absorption of an existing organisation: the Motor Machine Gun Service which had been formed as part of Royal Field Artillery in November 1914. Its original intention was to provide a motor machine gun battery of six guns to each division going overseas. They mounted their machine guns onto motorcycle and side-car combinations, with a section having four motorcycle combinations, two with machine guns and two with ammunition, a solo motorcycle for the sergeant and a truck to carry spares and a mechanic.

The mechanical nature of this branch required much higher skills and knowledge than the others, in a time when motorcycles, or any form of motor vehicle, were not commonplace and it was not possible to recruit the men they needed. Also, as the war stagnated into trench warfare on the Western Front, the mobility of the branch had limited opportunities. The rate of growth was thereby reduced and they became troops held at corps and army level for reserves and to assist in planned operations as additional machine gun teams that could be moved around the battlefield more quickly and under their own transport.

They spent much of the war at the corps level and attached to divisions for specific operations. Towards the end of the war, they became fully engaged in the final advance in Flanders and a Motor Machine Gun Brigade was formed of five batteries in France to co-ordinate their involvement. They were heavily involved in Mesopotamia as well, some of the batteries equipped with Model T Ford cars and light trucks, becoming Light Armoured Motor Batteries.

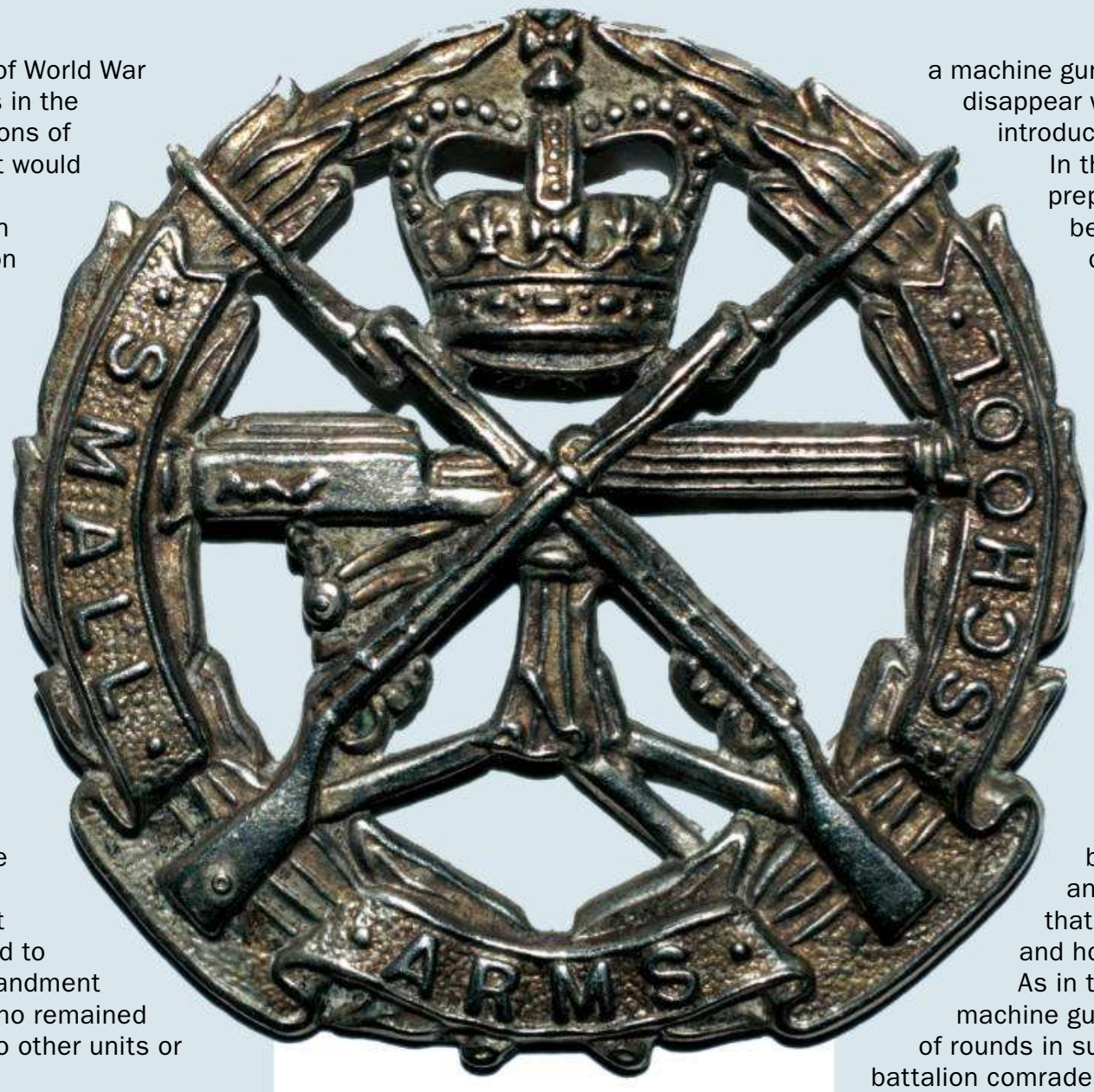
The Machine Gun Training Centre for the Motor Branch was on the National Rifle Association's site at Bisley, Surrey – the site of the Vickers MG Collection & Research Association's commemorative Vickers machine gun shoot in July 2022. There were 25 batteries formed during the Great War, and its peak strength was quite early on in the conflict – April 1916 – when there were 3,899 all ranks.

The mechanical nature of the Motors branch, with the need to understand the guns and the engines, meant it was an ideal organisation to 'parent' the Heavy branch of the Machine Gun Corps, formed on 14 July 1916. It was the first unit to use tanks and would become the Tank Corps on 28 July 1917.

A motor machine gun battery could be quickly moved around the battlefields of WWI

LEGACY OF THE CORPS

Despite being at its largest in December 1918, the MGC reduced significantly and swiftly after the armistice and subsequent treaty



After the end of World War I, those units in the regular divisions of the army that would form the first British Army of the Rhine in 1919 remained and took on many of the soldiers that had time to serve before demobilisation or wished to continue in the army.

The fighting of the Great War had finished but the Machine Gun Corps (MGC) continued to see service in northwest Russia supporting the imperial forces there, in northwest India and Afghanistan until 1921. Their final engagements were in 1922 in Ireland as part of the transition of power to the Irish Free State. The last battalion of the MGC to see service was the 1st Battalion and they returned to Shorncliffe, Kent, for disbandment on 15 July 1922. Those who remained in MGC were transferred to other units or left the army.

With only six years, nine months and two days of service, the MGC had seen around 200,000 men pass through its ranks, the majority of whom served overseas. At least 16,917 had died in service (this number continues to grow as more evidence is found) and up to another 50,000 had been wounded or taken prisoner.

The MGC fell victim to the post-war cuts through a mixture of political and economic decisions as well as the reduced requirement for massed machine guns in the conflicts for which the army was preparing. Machine guns were an 'easy' capability to return to the infantry battalions and cavalry regiments and those units formed companies and squadrons within them, often with a higher proportion of machine guns than the MGC had provided. It was recognised that machine guns were a 'force multiplier' (in modern parlance) and the infantry battalion organisation in the inter-war period had three rifle companies and one machine gun company of 12 guns – whereas during the war this was equivalent to only four guns. Although the cavalry retained a machine gun squadron, these began to disappear with mechanisation and the introduction of armoured cars.

In the late 1930s, with preparations for what would become World War II, it was decided to centralise the command and control of machine guns once again, but a corps of machine gunners would not be formed. Instead, certain regiments of the British Army would have battalions converted to be machine gun units. A battalion would be attached to an infantry division, with an armoured division having just a company. They would take on the role of barrage fire, direct support and all those other tasks that the MGC had developed and honed 25 years before.

As in the Great War, massed machine guns would fire millions of rounds in support of their infantry battalion comrades and this time they had heavy mortars in support too. The value of machine gunnery was once again to the fore but, as with World War I, machine guns were found to be usefully centralised only in wartime and they were re-distributed to each infantry battalion after World War II, where they remain to this day, as the part of support companies.

After World War I the cap badge of the MGC endured for a short period while it was worn at the Machine Gun School at Netheravon in Wiltshire. The cap badge changed in 1929 with the formation of the Small Arms School Corps but the crossed machine guns symbol stayed until the 1960s as the skill-at-arms insignia of a machine gun instructor. The Small Arms School Corps is still part of the British Army – it maintains some elements of the Corps' legacy due to their connection with the Machine Gun School, and the Royal Tank Regiment bears the legacy of the Heavy and Motors branch. However, it is for the machine gun elements of all the infantry battalions where the principles and practices of the MGC are remembered, consciously or not.

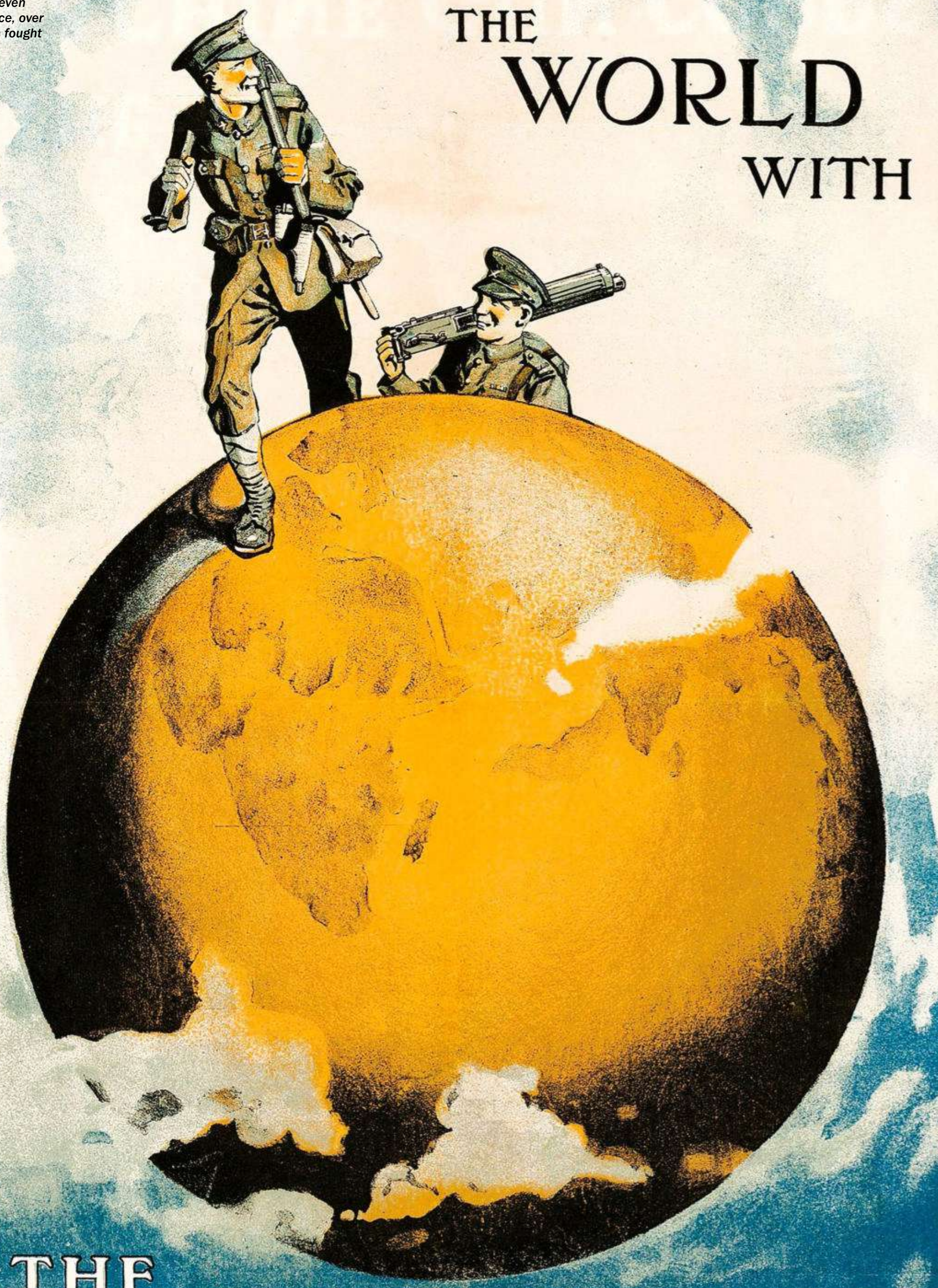
VICKERS MG COLLECTION & RESEARCH ASSOCIATION

The Vickers MG Collection & Research Association is a non-profit organisation founded by historian Richard Fisher, which houses a vast archive of records and photographs relating to the MGC. In 2022, the Vickers MG Collection & Research Association commemorated the centenary of the disbandment of the Machine Gun Corps with two major events: a 16-gun (company equivalent) Vickers machine gun shoot at the National Rifle Association, Bisley, (the home of the Motors' Machine Gun Training Centre), and a spotlight event at the National Army Museum, Chelsea. Working with the Machine Gun Corps Old Comrades' Association, who represent the families of the men of the Corps, these events sought to ensure that the memory of the Machine Gun Corps and the legacy it created was brought to a wider audience in this important year.

Images © Alamy

In its nearly seven years of service, over 200,000 men fought in the Corps

TRAVEL ALL OVER THE WORLD WITH



THE MACHINE GUN CORPS

SHERMAN

THE MAKING OF A WAR WINNER

The M4 Sherman medium tank was produced in huge numbers during WWII and became the Allies' most prominent yet controversial land weapon of the conflict

WORDS MICHAEL E HASKEW

The M4 entered production in October 1941 – just one month after the prototype had been completed

Among the iconic Allied weapons of the Second World War, the M4 Sherman medium tank emerged as perhaps the most decisive, but also without doubt the most controversial.

The M4 was distinctly American, and the influence of prevailing land warfare doctrine shaped its development, along with the obligatory influences that dictate the genesis of armoured fighting vehicles to this day – firepower, mobility and armour protection. Prior to US entry into the war, the American military establishment watched with great interest, and frankly some astonishment, as the German blitzkrieg slashed across Europe with incredible speed and efficiency.

In response, American armoured doctrine revolved around the use of tanks as penetration and exploitation weapons. Tank-versus-tank fighting was considered only as a secondary aspect of land warfare, and when enemy tanks were encountered they were to be dealt with by open-turreted, fast-moving tank destroyers. The tank itself was to be an infantry support weapon.

While Britain and the Empire stood alone against the Nazis and President Franklin D Roosevelt declared the US to be the great “arsenal of democracy”, American factories supplied tremendous amounts of war materiel to the British armed forces via Lend Lease. Among these weapons were the early production tanks, rolling off the assembly lines and loaded on ships for the perilous crossing of the Atlantic. The earliest of these to reach British forces in substantial numbers was the M3 Grant/Lee tank.

The M3 was a ponderous vehicle whose design was reminiscent of the tanks that had fought during World War I. With its high silhouette, the M3 was vulnerable to enemy fire, while its turret was small and capable of accommodating only a relatively light 37mm cannon. To address the need for additional firepower, the M3 was armed with a 75mm gun housed in a hull-mounted sponson.

Why the throwback design? The answer was simple and startling. While the panzer divisions of the German Army already deployed tanks with turrets that could accommodate larger caliber 50mm and 75mm guns, and British designs could as well, there was no production-ready American tank turret that could do so. Therefore the M3 was a stopgap design that could bring comparable firepower to the battlefield against German armour while American engineers rushed to design a turret and chassis that could be mass-produced and deployed in a relatively short period of time. When British tankers took possession of their first M4s, they continued their practice of naming US-built tanks

“THEY CHRISTENED THE M4 THE SHERMAN, AFTER UNION GENERAL WILLIAM TECUMSEH SHERMAN”

M4 tanks leaving the Pullman-Standard factory in Hammond, Indiana, July 1942

Chrysler Corporation’s Detroit Arsenal Tank Plant built nearly 18,000 Shermans

Images © Getty

The crew of a Sherman pictured during training in England, February 1944

The Sherman played a key role in the Allies' eventual success against the Nazis in North Africa

A Sherman, crewed by British troops, advances during the pivotal battle for Caen, June 1944

A turret-mounted machine gun was used for defence against enemy aircraft and infantry

for generals of the American Civil War. They christened the M4 the Sherman, after Union General William Tecumseh Sherman.

DESIGN AND DOCTRINE

As early as April 1922 the US War Department had issued a policy statement regarding armoured warfare. The primary role of the tank was, it said succinctly, "to facilitate the uninterrupted advance of the rifleman in the attack". While such doctrine held sway through the inter-war years and beyond, it was naive and impractical a generation later. By the time the Second World War erupted in Europe, tank-versus-tank combat was inevitable. While American generals debated the role of the tank in modern warfare, progress in design and innovation was glacial.

By 1941, the old M2 light and medium tanks were obsolete. Further, the M3 was acknowledged as something of a throwback. Even though the additional firepower of the 75mm gun was welcomed by the British during the desert war in North Africa, a superior design was clearly necessary to combat ever-improving German variants of the PzKpfw III and PzKpfw IV models deployed as early as 1941.

On 31 August 1940, a full year after the war had begun in Europe, the US Army Ordnance Board was presented with a tank design that would become famous – or infamous – the world over. The prototype T6 was chosen from among five competing designs the following spring. While the T6 was in development, the M3 was being produced in significant numbers, and the sense of urgency for a production model of the new tank was palpable.

The engineers who put forward the T6 design weighed the positive and negative aspects of the future M4. Speed, firepower and armour protection – the three pillars that determined a successful blueprint – had to be balanced. While armour meant protection for the crew, it also added weight, cost and larger quantities of precious steel for manufacture. Further, the tank's speed would be reduced and manufacturing time lengthened. The momentous decisions made in the design phase dictated the battlefield performance of the resulting M4 Sherman medium tank. Armour protection would be sacrificed in favour of speed and ease of mass production. This became the source of a controversy that has raged for more than 80 years as veterans, historians and other observers have evaluated the M4's combat performance. Still, it must be acknowledged that the M4 design was in keeping with the prevailing US armoured doctrine at the time.

"ARMOUR PROTECTION WOULD BE SACRIFICED IN FAVOUR OF SPEED AND EASE OF MASS PRODUCTION"

PUSH TOWARD PRODUCTION

The exigencies of war dictated a fast track for the M4, and only a month after the prototype was completed at Aberdeen Proving Ground in Maryland, the tank entered production in October 1941. A key to rapid mass production involved the retention of as many parts and features of the preceding M3 as possible. Although the upper hull was substantially reconfigured, resulting in the classic slope of armour that makes the tank silhouette easily recognisable, the M4's external propulsion system included an existing system with a front-drive sprocket connected to the gear box, rear-adjustable track idler, three sets of bogies each with a pair of large road wheels, and three return rollers. The track configuration was a standard from the mid-1930s, and the vertical volute suspension system was initially employed.

The M4 originally mounted the short-barrelled M2 75mm cannon, deemed adequate for infantry support, along with one .30-calibre Browning M1919A4 machine gun in the turret mantlet, another ball-mounted in the hull, and a .50-calibre M2HB turret-mounted machine gun for defence against enemy aircraft or infantry. Later variants mounted the short-barrelled 75mm M3 L/40 and high-velocity long-barrelled 76mm M1 L/55, which required a turret modification to accommodate the recoil of the heavier weapon. British innovators upgunned the M4 with the Ordnance Qf 17-pounder gun and dubbed the potent platform the 'Firefly'.

Periodic variations to the M4 powerplant, welded and cast hull production changes, and other alterations occurred during the production run from 1941-45, and the tank was produced in seven primary production models. British tweaks to the design resulted in multiple variants that they called 'Marks'. The M4 weighed approximately 30 tons, and the original nine-cylinder Continental R-975 gasoline radial aircraft engine, modified for use in the tank, produced a top speed of 48km/h (30mph). The tank was serviced by a crew of five: the gunner, loader and commander in the

Images © Getty

turret, while the driver and assistant driver were positioned forward in the hull.

The first production model was the M4A1, and through the course of World War II more than 49,000 M4 tanks were produced, second only to the Soviet output of the famed T-34 medium tank. Along with the British Firefly, significant variants included the M4A2 powered by a General Motors 6046 diesel engine, the M4A3E8 'Easy Eight' with 58cm (23in) wide tracks for stability and smoother cross-country ride, and the Duplex-Drive (DD) amphibious Sherman that was deployed for the D-Day landings in 1944. One of the most critical improvements was the introduction of wet ammunition storage, helping to minimise the possibility of catastrophic explosions; however, throughout its service life the Sherman was notorious for 'brewing up'.

By far the largest producer of the M4 Sherman was erstwhile American automobile manufacturer Chrysler Corporation, which built nearly 18,000 during the course of the war. Chrysler executives were instrumental in the construction of the Detroit Arsenal Tank Plant on a 45-hectare (113-acre) site in Warren Township, Michigan, (27km) 17 miles from downtown Detroit, the heart of the US peacetime automobile industry. No fewer than ten other companies – including the Fisher Body Division of General Motors, Lima Locomotive Works, Pressed Steel Car Company, Baldwin Locomotive Works, Pullman-Standard and Ford Motor Company – built the M4. The Canadian-built Ram tanks were based on the Sherman configuration, and the versatile M4 hull served as a platform for a variety of specialised armoured vehicles from self-propelled artillery to recovery, anti-mine, flamethrower and spigot mortar models.

SHERMAN GOES TO WAR

The first wartime deployment of the Sherman occurred rapidly in the wake of a desert disaster. When British Prime Minister Winston Churchill received the news that the Libyan port of Tobruk had fallen to Axis forces under General Erwin Rommel in June 1942, he was in Washington, DC, to confer with Roosevelt. Churchill was visibly shaken, and Roosevelt offered to assist with whatever the Americans could do. The prime minister thought for a moment and asked for all the tanks the US armed forces could spare. Meanwhile, the British Eighth Army drew a line in the desert sand at the railroad whistle-stop of El Alamein on the Egyptian frontier and easily within striking distance of the port of Alexandria, the capital of Cairo and the Suez Canal.

As Eighth Army commander General Bernard Montgomery took in supplies and reinforcements, the arrival of about

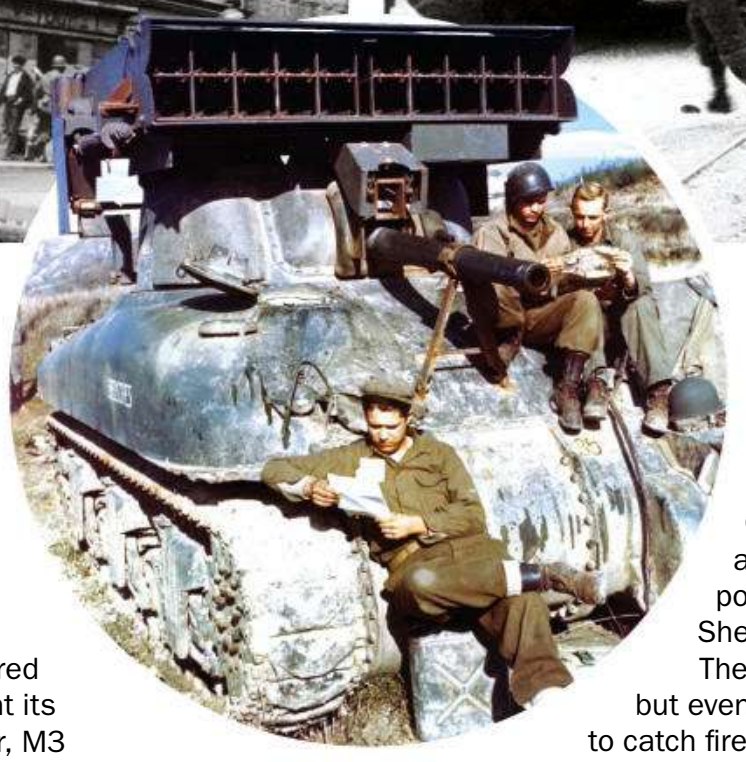
“THE VERSATILE M4 HULL SERVED AS A PLATFORM FOR A VARIETY OF SPECIALISED ARMOURED VEHICLES FROM SELF-PROPELLED ARTILLERY TO RECOVERY, ANTI-MINE, FLAMETHROWER AND SPIGOT MORTAR MODELS”

Sherman Crab flail tanks in front of burning buildings in Arnhem, 14 April 1945

Images © Getty

The Sherman's relatively thin armour protection led to high casualty rates

Amphibious Duplex-Drive M4s and Allied troops battle to secure the port of Ouistreham in Normandy



A Sherman fitted with a T40 'Whizbang' multiple rocket launcher. Its 20 rockets could be fired one at a time or in salvoes

300 new M4 medium tanks was most welcome. The Shermans had been shipped aboard several freighters in July, and by the time of the pivotal Battle of El Alamein in October 1942 more than 250 were deployed with a dozen armoured units of the Eighth Army to augment its complement of Valentine, Crusader, M3 Grant/Lee and M3 Stuart light tanks.

The 2nd Dragoons Guards, popularly known as the Bays, and 10th Hussars went into battle side-by-side at El Alamein on 23 October. Just before daylight, the Bays lost three Shermans to mines before a troop destroyed a German antitank gun, but two more tanks were immobilised by mines. Later that morning, the Bays' B and C Squadrons advanced with infantry on their flanks and A Squadron 10th Hussars to the rear. The British Shermans charged more than 20 German tanks and destroyed half of them in a swirling fight. During the remainder of Montgomery's offensive, the Sherman played a key role.

Meanwhile, the first Shermans in action with American forces landed in North Africa during Operation Torch on 8 November 1942. The inexperienced US soldiers took heavy losses; on 14 February 1943 a contingent of 51 Shermans of the 3rd Battalion, 1st Armored Regiment lost 44 of its tanks in a savage encounter. At the village of Sidi Salem, A Sherman destroyed a pair of enemy tanks, and west of the town a platoon of Shermans ambushed four PzKpfw IVs and knocked out two of them.

CRITICAL ASSESSMENT

These early examples of the Sherman in combat were assessed with mixed conclusions. While the 75mm gun was potent enough to take on enemy tanks then in the field, the illusion that tank-versus-tank combat would seldom occur was shattered. In the process, the speed of the Sherman, its ease of maintenance and its growing numbers as US industrial output increased were counterbalanced by the thin armour protection that obviously had a negative impact on survivability. Casualties among the Allied tankers were severe, and the thin skin of the Sherman bore the brunt of the criticism.

As the war progressed, the appearance of heavier German tanks with bigger main weapons, including the PzKpfw V Panther and PzKpfw VI Tiger, with high-velocity 75mm and 88mm main weapons and thick armour plating, put the Sherman at a disadvantage, both in protection and the penetrating power of its gun. When a Sherman 75mm round struck home it was often just powerful enough to attract the enemy's attention rather than penetrate the German tank's tough hide, and the installation of the more powerful main weapons in the Sherman turret became a necessity. The Germans respected the M4, but even they observed its propensity to catch fire, nicknaming the Sherman the 'Tommy Cooker' in reference to the slang term for the British soldier, the Tommy. American tankers began to refer to the Sherman as the 'Ronson', alluding to advertising for a popular cigarette lighter of the period. The Ronson slogan "Lights up the first time, every time!" indicated the grim humour with which its operators climbed aboard. Polish tank soldiers who operated the Sherman called it the 'five-man cremation device', and Soviet soldiers referred to it as the 'burning grave'.

In the final analysis of combat in North Africa and Western Europe, the Germans were simply overwhelmed by the number of Sherman tanks they confronted. The Panthers and Tigers were heavy, over-engineered and prone to mechanical failure due to inadequate powerplants for their weight. They were precision weapons and could never be produced in sufficient quantities to take long-term control of the battlefield. In contrast, the Sherman was reliable, fast, mass-produced and available in large numbers by 1943-44.

THE WAR WEARS ON

Ten battalions of the DD Sherman tank were allotted to the D-Day landings in Normandy on 6 June 1944, and they did play a key role in supporting the establishment of the Allied foothold on Gold, Juno, Sword, Omaha and Utah beaches. However, the weather in the English Channel was rough, and most of the DD tanks were required to come ashore under their own power after being discharged from landing craft approximately 3km (two miles) off the invasion beaches.

In the event, eight DD tanks were swamped in heavy seas and failed to reach Gold, but those that did – of the 7th Royal Dragoon Guards and the Sherwood Rangers Yeomanry – blasted German pillboxes and machine-gun nests to facilitate inland movement. At Juno, 21 of 28 DD Shermans of the Canadian 1st Hussars moved off the beach rapidly with vital fire support. Twenty-seven DD Shermans waddled ashore at Utah, assisting the 4th Infantry Division in its drive, but the DDs off Omaha suffered mightily. A total of 64 Shermans had been allocated to the 741st and 743rd Tank Battalions. Shortly after 29 tanks of the 741st were launched into the roiling English Channel, 27 foundered and sank. The 743rd lost 29 of an initial deployment of 32 at

"TEN BATTALIONS OF THE DD SHERMAN TANK WERE ALLOTTED TO THE D-DAY LANDINGS IN NORMANDY ON 6 JUNE 1944"

With its propensity to quickly catch fire when hit, US crews nicknamed the M4 the 'Ronson' after the cigarette lighter

Images © Getty

Anti-mine Shermans were equipped with rotating chain-tipped flails to detonate contact mines and set off magnetic mines

Snow-bound Shermans pictured during a lull in the fighting during the Battle of the Bulge – among Nazi Germany's final offensives in the West

Winston Churchill (in the leading half-track) inspects Sherman tanks and their crews in Yorkshire during preparations for the Normandy landings, April 1944

Omaha, and the remainder of the battalion's DD Shermans were later put ashore directly on the beach.

During the ensuing Normandy campaign, the Sherman tanks that populated Allied armoured formations ran into the heavier Panthers and Tigers of the Germany Army and SS panzer divisions that contested the hedgerow country, or bocage, where defences bristling with anti-tank guns and concealed German armoured vehicles made every farm lane a shooting gallery.

When Sherman tanks had difficulty traversing the high earthen mounds of the hedgerows, a battlefield modification assisted in the effort. Sergeant Curtis Cullin of the US 102nd Cavalry Reconnaissance Squadron suggested welding steel blades to the front of the Sherman hull, allowing the tanks to dig into the hedgerows and plough through them. Hundreds of tanks were modified in this manner.

During the fighting for the French crossroads and communications centre of Caen, a D-Day objective that took six weeks for forces under Montgomery to capture, the British infantry and armour slugged it out with German tanks, losing scores in pitched battles but eventually taking the town. Meanwhile, as the British fought the bulk of German armour, the Americans executed Operation Cobra, the breakout from Normandy in the vicinity of Saint-Lo.

When the US Third Army, under General George S Patton, Jr, emerged into the open plain of Brittany, ideal tank country, the Sherman was at its best. Speed and mobility paid dividends as Third Army dashed across France. Still, there were heavy losses, but the machines destroyed in combat could be replaced. Nevertheless, the casualties were frightful at times, and many an Allied soldier lost his life riding a Sherman into combat.

In the autumn of 1944, the Sherman spearheads of the British XXX Corps tried to link up with airborne troops in Holland during Operation Market Garden, but the advance along a single road was slow. German anti-tank guns took a fearful toll in XXX Corps Shermans, and the thrust intended to advance into the Ruhr, the industrial heart of Germany, ended in failure.

To the south in September, the Battle of Arracourt involved American Shermans fighting factory-fresh German Panthers. Despite their advantage in tank-versus-tank engagements, the German crews were not thoroughly trained and the Panthers were handicapped by limited reconnaissance prior to the fight, which degenerated into a brawl. When Panthers breached the line of Combat Command A, 4th Armored Division, the Americans responded with a flanking manoeuvre that accounted for the destruction of 11 Panther and PzKpfw IV tanks. When inclement weather cleared, fighter bombers of the XIX Tactical Air Command blasted any German tank left in the open. When the Battle of Arracourt ended, the Germans had lost nearly 90 tanks with dozens more sustaining damage. The 4th Armored Division lost 41 Shermans.

In December 1944, the Germans launched Operation Wacht am Rhein, which resulted in the Battle of the Bulge.

Shermans in the North Rhine-Westphalia region of Germany, November 1944. The fast tank was at its best in flat, open terrain

As the Nazi spearheads directed toward the Belgian port of Antwerp were blunted, the Sherman played a key role in reducing the panzer penetration of the American lines through the Ardennes Forest. When Third Army pivoted northward to relieve the encircled crossroads town of Bastogne, Belgium, elements of the 4th Armored Division, Sherman tanks forward, made contact with the 101st Airborne and Combat Command B, 10th Armored Division, which had held Bastogne against long odds.

In the Pacific, the Sherman generally dominated combat against inferior Japanese tanks mounting smaller calibre main weapons. The Sherman also performed well in open space, although such opportunities were limited in the confines of jungle and island fighting. Nevertheless, where it was deployed the tank's 75mm gun was instrumental in destroying Japanese bunkers and machine-gun nests, notably during operations at Tarawa in 1943, as well as the Marianas, Philippines, Iwo Jima and Okinawa in 1944-45.

BATTLEFIELD BURDEN

While the M4 Sherman was providing support for the advance into Germany in the spring of 1945, General Dwight D Eisenhower, Supreme Commander of Allied Force in Europe, had become aware of the glaring shortcomings of the tank. He wrote a letter to subordinate commanders asking for assessments of its performance. It read in part: "Our men, in general, realize that the Sherman is not capable of standing up in a ding-dong, head-on fight with a Panther. Neither in gun power nor in armor is the present Sherman justified in undertaking such a contest. On the other hand, most of them realize that we have got a job of shipping tanks overseas and therefore do not want unwieldy monsters; that our tank has great reliability, good mobility, and that the gun has been vastly improved."

General Maurice Rose of the 3rd Armored Division wrote back: "It is my personal conviction that the present M4 and M4A3 tank is inferior to the German Mark V… The fact… is borne out by the excessive number of losses we took while fighting in Belgium in December and January."

Staff Sergeant Harry Wiggins, a frontline tanker of the 33rd Armored Regiment, noted: "I have fired at 150 yards at a Panther… without penetration. This of course was at the front of a Panther, with a 75mm. We manage to get within effective range of German tanks because they are generally hiding or camouflaged and we try to engage them within a couple of hundred yards."

The American and British tankers did benefit from improved firepower as modifications to the main guns were completed, and they developed tactics that suited their numerical advantage. Eventually, the Sherman gained the edge in a war of attrition. From the German perspective, there were simply too many of them.

Still, men's lives were sacrificed with the Sherman. Belton Y Cooper, a veteran of the 3rd Armored Division, penned a controversial postwar book titled *Death Traps: The Survival of an American Armored Division in World War II*. He asserted: "We lost 648 medium tanks. We had another 700 repaired and put back into action. When you compare that to the 232 we had when we landed at Normandy, I don't know of any other division or service that took that kind of loss." Cooper estimated the 3rd Armored Division's loss rate in tanks at 580 percent.

Contemplating whether or not the Sherman tank was a war winner during the course of World War II, the answer depends upon the individual's perspective. The Allies prevailed, and the Sherman contributed to the victory – but at a considerable price.

M4 EPILOGUE

While the M4 Sherman's performance in WWII remains the subject of vigorous debate, the tank itself recorded a remarkable service life of more than half-a-century. By the late 1940s, surplus Shermans were in action with the forces of the fledgling nation of Israel, and Israeli engineers went on to upgrade the tank to configurations collectively referred to as the 'Super Sherman'. These improved variants were active with the Israeli armed forces into the 1970s.

M4 variants were active with UN forces during the Korean War alongside newer types and fared predictably poorly in combat against the Soviet T-34s in service with the North Koreans, although their performance in infantry support was solid. In 1959, Cuban revolutionary Fidel Castro rode into Havana atop a Sherman, and India and Pakistan fielded the tank during their wars of the 1960s and 1970s.

In more than 50 years of service, the Sherman was used by the armed forces of dozens of countries. Although one may still be operational somewhere, the last known Sherman used in combat was an M4A3 with the Nicaraguan National Guard in the 1978-79 Sandinista Revolution.

The topic of both praise and scorn, the M4 Sherman medium tank remains one of the decisive weapons of WWII and an icon among 20th century armoured fighting vehicles.

"THE TOPIC OF BOTH PRAISE AND SCORN, THE M4 SHERMAN MEDIUM TANK REMAINS ONE OF THE DECISIVE WEAPONS OF WORLD WAR II"

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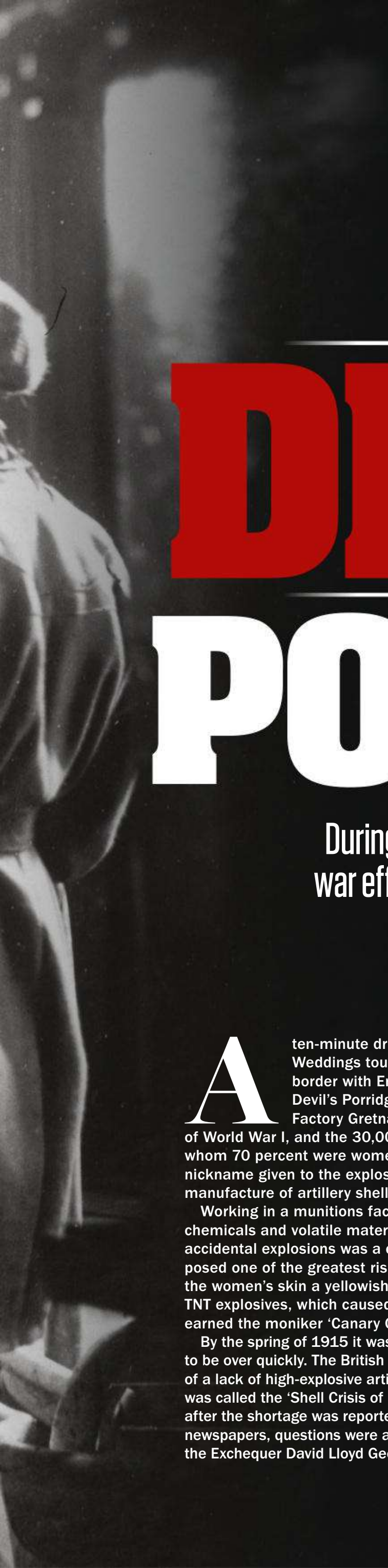


THE DEVIL'S PORRIDGE

During World War I, Britain's female workforce rallied to the war effort, joining munitions and weapons factories. Some of this work was notoriously hazardous...

WORDS **CRAIG MOORE**

A ten-minute drive to the west of the Gretna Green Weddings tourist attraction, on the Scottish border with England, is the unusually named The Devil's Porridge Museum. It tells the story of HM Factory Gretna, the largest munitions factory of World War I, and the 30,000 people who worked there – of whom 70 percent were women. The 'Devil's Porridge' was the nickname given to the explosive mixture that was used in the manufacture of artillery shells.

Working in a munitions factory was hazardous. Handling acids, chemicals and volatile materials meant that the potential for accidental explosions was a constant threat. Nitric acid fumes posed one of the greatest risks to health, and the acid could turn the women's skin a yellowish tinge. The workers handling these TNT explosives, which caused their skin to turn bright yellow, earned the moniker 'Canary Girls'.

By the spring of 1915 it was obvious that the war was not going to be over quickly. The British Army was losing key battles because of a lack of high-explosive artillery ammunition. This led to what was called the 'Shell Crisis of 1915', or the 'Shells Scandal', and after the shortage was reported by *The Times* and the *Daily Mail* newspapers, questions were asked in Parliament. Chancellor of the Exchequer David Lloyd George and the newspapers' owner Lord Northcliffe worked together to try and force Parliament to adopt a national munitions policy with central control. This resulted in Lloyd George being appointed minister of munitions. He created a series of new munitions factories to supply the soldiers and artillery guns on the front line with the ammunition they needed. Before the war there were three national factories producing ammunition; by 1916 there were 150.

Gretna was just a rural farming community, but in 1915 the men from the Ministry of Munitions arrived with navvies construction teams. Within 12 months the area was totally changed. HM Factory Gretna stretched for nearly 9 miles (15km), and in addition new accommodation had to be built for the 30,000 workers needed to manufacture RDB Cordite, a new type of munitions propellant used in shells and bullets. By 1917 the factory was producing 1,100 tons of cordite per week, more than all the other munitions plants in Britain combined, providing much-needed ammunition for the troops fighting on the front line.

Recruiting the workers

The outbreak of World War I changed the status of women in Britain forever. For the first time, many women would have access to jobs that paid higher wages than they could previously earn. Female representatives from the Ministry of Munitions toured

"BY 1915 THE BRITISH ARMY WAS LOSING KEY BATTLES BECAUSE OF A LACK OF HIGH-EXPLOSIVE ARTILLERY AMMUNITION"

This photograph of a lone British soldier up to his knees in spent shell cases illustrates the vast quantity of ammunition used on the Western Front

British towns and cities encouraging young women to enter the war service and do their bit for king and country. There were thousands of vacancies in the established factories as the male workers joined the armed forces.

The construction of the new munitions factories such as HM Factory Gretna led to an even higher demand for new workers. The female recruits were lied to about the safety conditions of their employment. They would be working with extremely dangerous substances that would be lethal if they exploded, cause life-changing injuries if they got on their skin, and in some cases cause long term health damage.

Each section of the vast Gretna complex had a different function. The Dornock factory manufactured the crude explosive paste, known as the Devil's Porridge. The Mossband factory processed the paste and transformed it into cordite. The buildings were separated from each other in case any of the dangerous materials caused an explosion.

Before the war, employment opportunities for many young girls was limited to service as maids, mill workers or farm workers, earning perhaps six shillings a week. By contrast, a week's pay at HM Factory Gretna was 22 shillings and six pence which, even after deductions for board and food, left the women with a large amount of spare income. The high wage was a huge incentive for many to come to Gretna. Add to this Sunday work and overtime, and munitions girls could easily double their weekly wage. By September 1918 women's weekly pay had risen by 77 percent to 33 shillings, although this was still far less than the 52 shillings men earned for doing the same job. Changes in attitudes also meant that it became acceptable for married women to work.

***Above: During** WWI the government launched a campaign to recruit female munitions workers*

Married munitions worker Mrs G M West recalled: "The particles of acid land on your face and make you nearly mad, like pins and needles only much more so, and they land on your clothes and make brown specks all over them, and they rot your handkerchiefs and get up your nose and down your throat and into your eyes."

Another married munitions worker, Mrs Cooper from Sunderland, remembered: "We made the cordite, cut it in lengths, packed it in trays and then carried it to small trucks at the doorway, and two girls pushed the truck a mile or so to the large stoves where it was dried out… The full effects of the fumes were not felt immediately, but workers could develop an irritating cough that could lead to total collapse hours later. At the Mossband Factory, it was not unusual to see girls lying, apparently drunk, outside the factory buildings, from the fumes of the cordite, alcohol, and ether solvents. They had to be taken to the sick bay to sleep it off."

Munitions worker Mary Ellen Halliday recalled: "Whiffs of acid would keep coming over every now and again and used to fairly take your breath away. My gums were all poisoned with the acid, and I had to have all my teeth taken out."

Such was the volatility of the materials, the smallest error could lead to disaster. "Workers were not allowed to have any metal buttons on their factory clothes in case they fell into the mixture and caused an explosion! If they were caught, the buttons were cut off and the worker was fined," explained Emily Davies.

In response to these dangers, medical provision was extensive. In addition to its own hospital with 18 beds, the factory could boast two male and three female doctors, a dental surgeon, an outpatients' department with four nurses and a matron, and three ambulances. To deal with the day-to-day hazards, rest rooms and dressing stations were positioned throughout the factory, each with a qualified nurse in attendance. Decades before the founding of the National Health Service, these factory workers were receiving free medical care.

Thomson nitrating pans

Two large stoneware basins were used to mix acid and waste cotton to make nitro-cotton – one of the first stages in producing cordite. This was the Devil's Porridge. Adding the nitric acid was a risky process as splashes of the corrosive liquid could burn the munitions workers. The fumes from the acid made the nitrating section one of the most dangerous areas of the factory but consequently also one of the best paid.

Once the cordite was made and pressed into cords or strands, it was inspected and any defective pieces discarded. The dried cordite was stored in the case houses, where each case was marked with a serial number and inspected by a chemist before being passed as ready for dispatch.

From HM Factory Gretna, the cases were taken by rail to filling factories where more female workers packed the cordite into shells or gun cartridges, ready for the front line. The Ministry of Munitions owned 12 National Filling Factories throughout Britain. Once filled, the ammunition was taken by ship to base depots manned by the Army Service Corps in France. From there the much-needed ammunition was distributed to the soldiers on the front line.

Building the township

While the factory at Gretna was being built, houses and hostels for the munitions workers were also under construction. This huge factory needed thousands of workers and they all required somewhere to stay. Accommodation was built with economy and speed, and the buildings were "plain, practical, straightforward, of pleasant and reasonable proportion, and mercifully devoid of ornament or prettiness." This plain design was perfect for wartime austerity. In addition to houses and hostels, many other buildings including a medical centre, police and fire station, shops, a cinema, a dance hall and a library were constructed with incredible speed.

Hostel dormitories were divided in two – one part a dining room, the other sleeping quarters. They were cordoned off by thick curtains to form rooms for two, with wardrobes, chests of drawers, single beds and a chair. For many of the teenage workers this was their first time away from home. In each hostel, the munitions girls not only ate and lived together but also worked the same shifts, a system designed to promote camaraderie and close friendships. A matron was in overall charge of each hostel, assisted by a cook, housekeeper and maids.

To help the young women settle in and to make the hostels feel more homely, the munitions girls were allowed to decorate their dormitories with some approved items. These included a dressing table set of hairbrush, mirror and clothes brush, face compacts, face cream, perfume bottles and pill boxes. Souvenir china was sold to the munitions workers when they left the factory. It bears the motto "Perseverance Overcomes" and is stamped with the factory's name.

Emily Davies was a new girl at the factory in 1916. "The place which we had to live in was called 03 East and it was a marvellous wooden construction with four dormitories, two each side, and a large dining room in the middle where we all met for meals," she said. "There was every convenience: running water, hot and cold, bathrooms and a place where we could dry our clothes. We had to take our washing to a special place where there were the old-fashioned wringing machines and boards to

Right: *The Nitric Acid Store – nitre, imported from South America, was brought into the factory in railway wagons. Here the girls unload the enormous piles of white, crystalline nitre, which was converted into nitric acid*

Above: *The Grillo Oleum Plant, where sulphuric acid was produced. Here, the girls are charging up the sulphur burners which transformed the resulting sulphur gas into sulphuric acid. The acid was then mixed with the nitre*

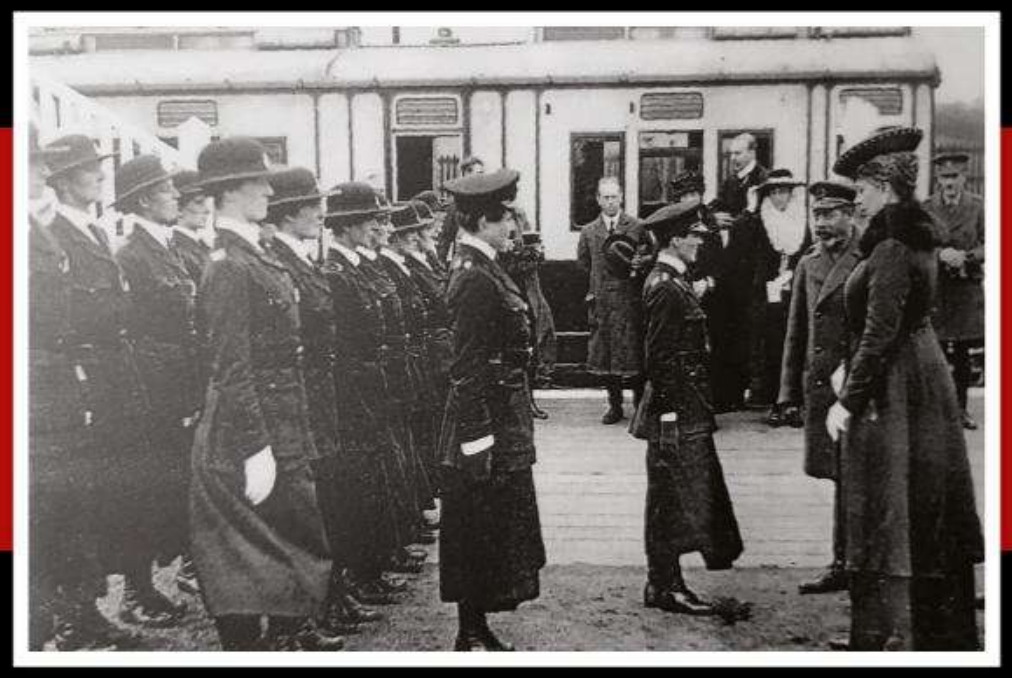
Left: *Two large stoneware basins were used to mix acid and waste cotton to make nitro-cotton – one of the first stages in producing cordite*

Images © The Devil's Porridge Museum

"THE PARTICLES OF ACID LAND ON YOUR FACE AND MAKE YOU NEARLY MAD, LIKE PINS AND NEEDLES ONLY MUCH MORE SO"

Women munitions workers at Gretna were paid around 22 shillings a week – much more than the pay for other female roles of the time

***Above:** Testing the gases in the laboratory was one of the more skilled jobs for the munitions girls*



***Above:** The HM Factory Gretna women's police force stands to attention during an inspection by King George V and Queen Mary*

wash your clothes on. The other laundry, sheets and blankets and pillowcases, all went to His Majesty's Laundry."

Unlike other munitions factories, HM Factory Gretna had its own Social and Recreational Department which supervised all amusements and recreation facilities. Everything from public dances, films and 'improvement' classes to music societies and a wide range of sports activities were laid on for the workers.

Hockey was a popular pastime, with several male and female teams from different sections of the factory. There were also boxing, wrestling and cricket clubs for male workers. Football was one of the most popular sports, with 6,000 workers, both male and female, participating. The factory had enough male players to run two separate leagues, one for Gretna and Mossband and the other for Eastriggs and Dornock. The matches were fiercely contested.

Silent movies were a great treat. The girls loved seeing their heroes and heroines on the big screen. During the week they would go to the small cinemas in Eastriggs and Gretna, but at weekends they would take the train to Carlisle where they could watch the latest films. During the war, these feature films became the newest and most fashionable form of cinema. For the munitions girls, a trip to the cinema to watch a silent movie was a popular activity, opening windows to new worlds of fashion, fantasy and, most dangerous of all, sexuality. To protect the morals of the young and impressionable workers, the government quickly established state-run cinemas at Annan and Longtown, and in the townships of Gretna and Eastriggs, where films could be vetted for their 'suitability'.

Following the strict hierarchy of factory life, the senior staff had separate facilities from the workers. These Staff Clubs were equipped with recreation and dining rooms staffed by waitresses. The Staff Club at Gretna could seat around 200 people and it was here that King George V and Queen Mary dined during their visit to the factory in May 1917.

As well as the dangerous manufacturing process, the women faced another threat: air raids. One worker recalled: "When war was declared I decided to help the war effort and got a job at Gretna. We were met at the station and taken to a large hut which was to be our home from home during our stay. Our first job was stoking furnaces with sulphur. One day, a week later, we were hurried outside. I understand there was a leak of some kind, and we were never sent back. I was then sent to take charge of the Drying Shed. The gun-cotton was in blocks, packed in bags to be put into the drying machines. They were loaded on to a conveyor belt upstairs to the screening shed where it was ground to a powder. I can remember the shed was bitterly cold and one night we had an alert. The lights in the shed went out and we were plunged into darkness. We heard afterwards that a Zeppelin had got through to Annan. Then I went on a more dangerous job which was underground and there too we had an alert. Our chemist dashed in shouting: 'Run girls! Run for your lives!' We did and I know I only stopped when my breath gave out."

The night shift

Mrs Cooper feared the night shift and was not as appreciative as others of the accommodation: "I went to Gretna in 1916. We lived in hostels, just wooden huts with long dormitories and a large living room with wooden forms to sit on, and a big iron stove (no comforts). Each girl had a small bedroom, no door, just curtain at the doorway, and it was very cold in the wintry weather. As the maids washed the floors they turned to ice as they dried out.

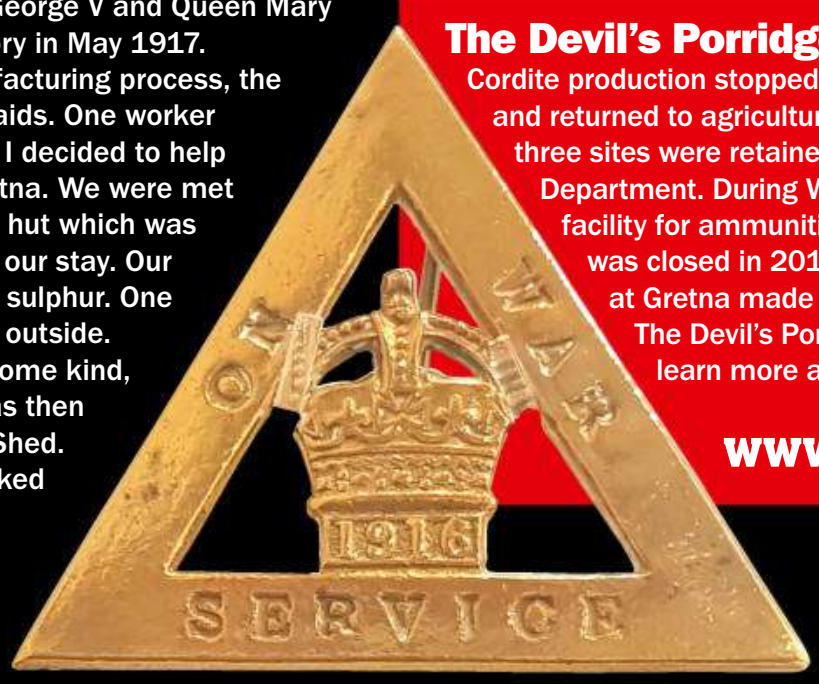
"We went to work in trains with wooden seats and each one of us had a pass to show before we were allowed in the large gates. We changed into overalls and hats to cover all our hair. Where we worked, we made the cordite… It was an awful job when on the trucks [used to take the cordite for drying] especially on night shift, chilly rain, dark and lonely, pushing the heavy trucks and rats running around your feet… Dinner was always served cold, but we ate it as we were always hungry.

"There was a hall in the village where we could go at weekends and dance with boys who came in from Carlisle. There was a medical hut where we had to go about once a month to have our hair combed with a small tooth comb to keep our heads clean."

The Devil's Porridge Museum

Cordite production stopped after WWI. Site 4 at Gretna was sold and returned to agricultural use, while large parts of the other three sites were retained for ammunition storage by the War Department. During WWII the Ministry of Supply used the facility for ammunition storage, and the last area of the site was closed in 2010. There's no doubt the female workers at Gretna made a vital contribution to the war effort, and The Devil's Porridge Museum is a great place to visit to learn more about them. For more information visit:

www.devilsporridge.org.uk



***Left:** Munition workers were given badges with this design on them*

Images © The Devil's Porridge Museum

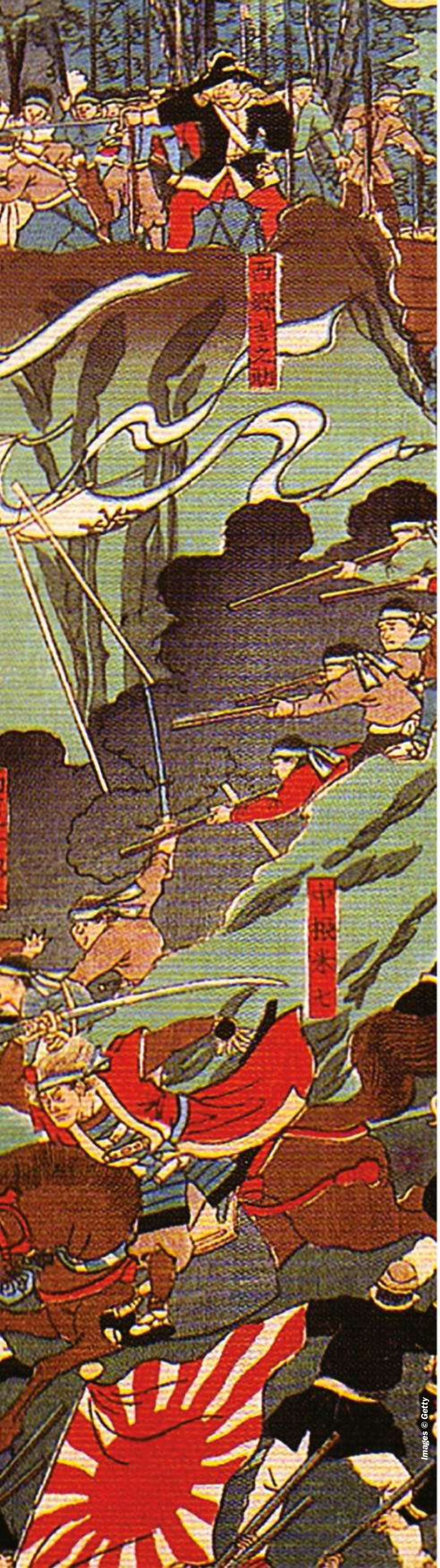
KAGOSHIMA, JAPAN 1-24 SEPTEMBER 1877

SHIROYAMA

A final showdown pitting a rebellious samurai clan against a Westernised army of Japanese conscripts launches a new Asian empire

WORDS MIGUEL MIRANDA

This illustration shows Saigo's troops blunt the Imperial Army's determined assault on the Shiroyama heights. But the truth was the rebels had been decimated by their enemy's howitzers beforehand



The rising that began on 15 February 1877 had the gravitas and splendour of the Sengoku Jidai (the bygone Warring States period) that roiled Japan from 1457 to 1600. But the circumstances of 1877 were different as samurai in their thousands, armed to the teeth, swept through northeast Kyushu – Japan's prominent southern island.

Outwardly, these fighting men of Satsuma Province announced a long trek to the imperial capital Tokyo as a means for pressing their cause. Within weeks, however, the campaign faltered as a botched siege and a wobbly command structure undermined the rebels.

Adding insult to injury, the response from Tokyo was the arrival of army and police regiments in their drab marine-blue uniforms. Leading the imperial forces were aristocratic samurai and courtiers who were determined to uphold the new era: the end of the Tokugawa bakufu and the permanence of Emperor Meiji, whose backers had triumphed in the Boshin Civil War that was fought from 1868 until 1869. The contrast between the two opposing sides was at the heart of the conflict, where low-ranking samurai of Satsuma's Shimazu clan feared their class and the very social order in which it existed was being eroded by the modernising reforms of the 1870s.

Leading the rebels was Saigo Takamori, once a champion of restoring the emperor but now fully committed to overthrowing the state. Tall and muscular, his most distinguishing features were a barrel chest and two thick eyebrows. Opposing him was not just the young Emperor Meiji, formerly known as Prince Mutsuhito, but the imperial court, or mikado, that was staffed by the heads of other samurai clans, all firm believers in a modern society that could stand among the world's industrial powers.

The schism between these two factions was not the samurai heritage in particular but the conduct of foreign policy. The rebelling Shimazus under Saigo wanted violent conquests abroad as a means for raising Japan's prestige. The imperial court decided otherwise and set the country on a rapid course toward industrialisation and, for the meantime, Japan would not go to war against any state.

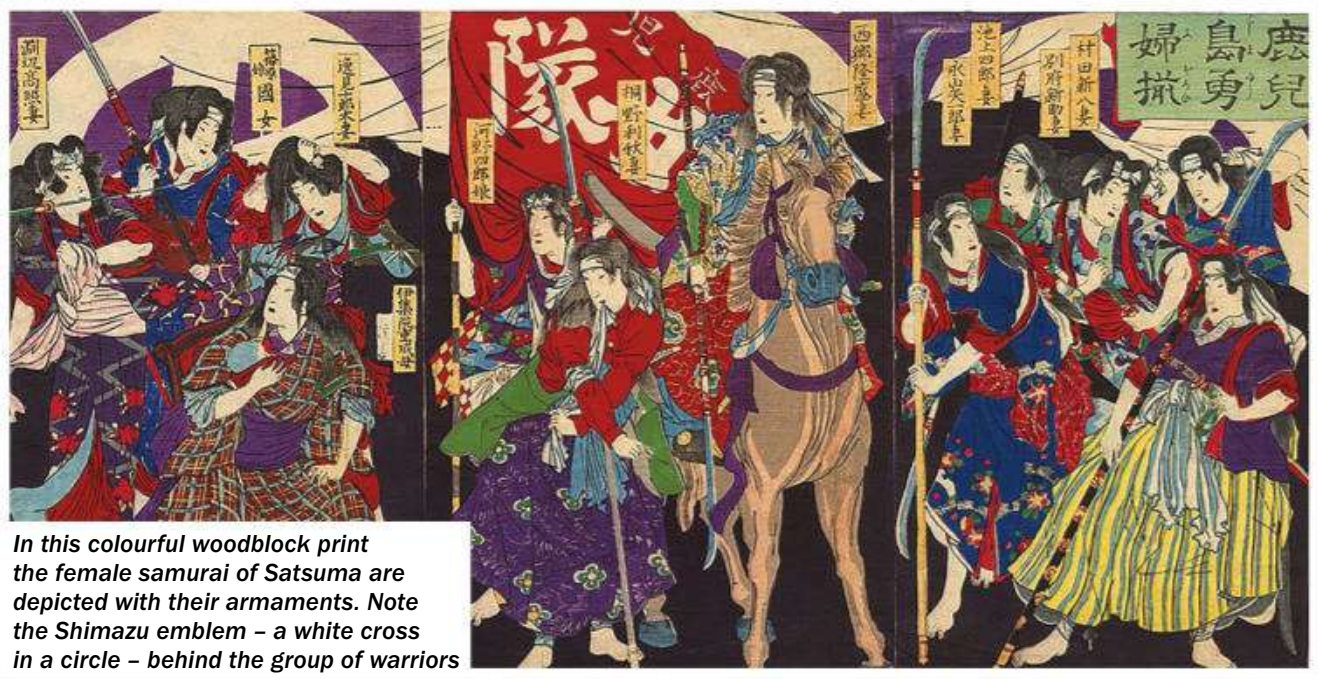
OPPOSING FORCES

SATSUMA REBELS	VS	IMPERIAL ARMY & NAVY
LEADERS Saigo Takamori		**LEADERS** Prince Arisugawa Takehito, Admiral Kawamura Sumiyoshi
NUMBERS c.400 samurai		**NUMBERS** 15,000 troops

This policy was established after the Boshin Civil War, which was Japan's most serious internal crisis since the Tokugawa bakufu, or 'shogunate' in Western terminology, came to be in 1603. During that brief conflict, the leading samurai clan of Kyushu – the Shimazu (their war banners printed with the white cross in a circle) defended the teenage Prince Mutsuhito's right to become emperor.

What made this war so vital was the fact it revived imperial power in Japan after nearly 1,000 years of struggle between warlords and shoguns. With an emperor in charge the distribution of regional power no longer favoured a specific clan or coalition. Unfortunately, what the resulting Meiji government did not anticipate was the Shimazu samurai's own aspiration to become a nucleus for a modernised Japanese army.

"SAMURAI IN THEIR THOUSANDS, ARMED TO THE TEETH, SWEPT THROUGH NORTHEAST KYUSHU – JAPAN'S SOUTHERN ISLAND"



In this colourful woodblock print the female samurai of Satsuma are depicted with their armaments. Note the Shimazu emblem – a white cross in a circle – behind the group of warriors

Images © Getty

Seeds of rebellion

The limited historiography on the Satsuma Rebellion, often tucked into summaries of the Meiji era, focuses on the discontent that gripped the Shimazu samurai clan when the Tokyo government acted on its policies for overhauling Japan's economic order. With the creation of a financial system patterned after European countries, the feudal organisation of society was dismantled. This meant what had once been clan domains were erased in favour of prefectures, with a governor responsible for the citizens' welfare. The local daimyo and their samurai retainers were abolished and, as some compensation, were entitled to receive small pensions. Most importantly, for the Meiji court a modern armed forces was to be founded that sidelined the prominence of samurai.

The Shimazu clan had an important role protecting the Meiji emperor and they defeated the final revolt of pro-Tokugawa samurai and 'the last shogun' Yoshinobu, in Hokkaido during the Boshin conflict. But the re-organisation of local government was seen as an onerous burden as samurai families in the Satsuma region lived in marginal poverty. An esteemed adviser and general in the imperial court, the rebel leader Saigo himself was not affected by this reform but his family were outspoken about Tokyo's foreign policy. In his frustration over the imperial court's reluctance to declare war on Korea and annex Formosa (known today as Taiwan) a contemptuous Saigo quit the government and used his influence to establish paramilitary camps (shigakkos) in Satsuma that attracted thousands of samurai. There was a dimension of class struggle to this as Saigo's staunchest support did not come from the actual Shimazu family – who enjoyed high-ranking positions in the emperor's court – but the rural samurai of his homeland who feared for their future.

The way the rebellion unfolded was a travesty from the beginning. With up to 20,000 samurai

01 KAGOSHIMA OVERRUN

On 1 September approximately 400 samurai led by Saigo Takamori rush into Kagoshima from the northeast. They overrun the town but are outnumbered.

02 REINFORCEMENTS

With fresh imperial troops arriving by sea the rebels evacuate the town and take over the Shiroyama heights on 3 September.

03 STANDING FIRM

The rebel stronghold is inaccessible from almost all directions, which protects them from a determined assault by imperial troops.

04 UNDER FIRE

By 10 September mortars are now in position just yards away from the rebel perimeter. Other 50-pounder cannons farther away maintain a steady bombardment.

Sakurajima, an active volcano, formed the backdrop for the last stand at Shiroyama

Images: Getty

05 HEAVY CASUALTIES

The Japanese Navy's offshore ironclads open fire on Shiroyama and inflict heavy casualties from 10 September until 22 September. Up to half of Saigo's men are killed or wounded.

06 BLOODY ENDGAME

As many as 15,000 Japanese army conscripts and sailors are sent to Kagoshima from different parts of Japan. The final assault takes place on 24 September and most of the rebels are killed.

"THE JAPANESE NAVY'S OFFSHORE IRONCLADS OPEN FIRE ON SHIROYAMA AND INFLICT HEAVY CASUALTIES FROM 10 SEPTEMBER UNTIL 22 SEPTEMBER. UP TO HALF OF SAIGO'S MEN ARE KILLED OR WOUNDED"

Map illustration: Nicholas Forder

***Above:** The Shimazu rebels' failure to overrun Kumamoto Castle after a 55-day siege caused a months' long retreat and the tragedy at Shiroyama. In this illustration the Imperial cavalry are shown breaking through rebel lines*

mustering under the Shimazu banner a march was set for Kumamoto Castle, a local stronghold and the seat of Meiji authority in Kyushu, but upon arriving at their destination the samurai led by Saigo struggled to overwhelm the garrison. It did not help their cause that the defenders were motivated to hold the fortress and the rebels' ammunition supply was soon dwindling. To add an element of farce, Kumamoto Castle itself was an antiquated structure built in the 17th century and it had never been subjected to any upheaval close to a full-blown siege. The Shimazu were protective of their autonomy in the Tokugawa era so they'd poured labour and money into building small forts around Satsuma. Kumamoto was the largest among them but its elaborate moats, ramparts and wooden towers were far from intimidating. Yet in an indictment of anachronistic samurai warfare, the castle held fast against its former masters.

One major obstacle to the samurai rebels faced was a lack of ammunition and gunpowder in Satsuma prefecture. Before the uprising had even begun, the army and national police removed these stores, so taking over Kumamoto was completely pointless. Nonetheless, the failure to capture even an aging fortification, was certainly damning for the Shimazu clan's reputation. As further embarrassment, Saigo's own relatives in Tokyo distanced themselves from events in Satsuma – his own brother was an army general with a faultless reputation.

Rout and ruin

The small garrison who held the castle was led by a loyal and very stubborn officer: Tani Tateki. An unremarkable samurai of unquestionable loyalty, Tateki was astute enough to ignore the rebels' pleas for his surrender. The samurai outside Kumamoto insisted their cause was a just one, but Tateki forbade his troops from leaving and burned all the houses surrounding the castle, giving his riflemen a clear field of fire.

The samurai rebels used some of their cannon against the ramparts and wooden structures of the castle but the defenders were undeterred. For weeks the garrison withstood hunger and privation but Tateki's gamble paid off. An imperial army that had disembarked at Nagasaki arrived, set the rebels to flight, and relieved Kumamoto Castle by April. The siege of Kumamoto was broken after 55 days and almost depleted the rebel army.

There were no longer significant battles throughout the summer and come July the reports to Tokyo were positive in their assessment that the rebels had been defeated.

Contrasting the disappointing outcome of their struggle for Kumamoto, the vanquished samurai rebels made a fighting retreat back to their homeland and marched east toward

This dramatic depiction of the battle for Shiroyama depicts Saigo, attired like a European officer, directing his samurai against the encroaching Imperial Navy

the coast. Saigo and some 10,000 samurai travelled hundreds of kilometres with ease, avoiding pursuit and detection by much larger imperial forces, and tried to capture the port city of Hiuga. When they met stiff resistance the samurai retreated to the nearby town of Nobeoka to the north and gave battle – it was a bloodbath. When fielded against determined imperial soldiers with sword and rifle the rebels crumbled and were surrounded.

After a consultation with Saigo's commanders on 18 August it was decided to surrender the greater part of the rebel army, some 7,000 exhausted samurai. To save face, Saigo and his staunchest followers such as Kirino Toshiaki were allowed to escape. Having broken through imperial lines in a surprise attack, the ragtag group made haste for Kagoshima and reached it by 1 September.

Weeks earlier Kirino, leading a separate group of samurai, had fought a battle in the city's outskirts and had bested an army brigade, although he failed to capture any territory. On 3 September the imperial troops were nearly driven away by the rebels marching from the northeast but the sudden arrival of the navy ruined Saigo's plans for holding Kagoshima. It did not help that the reinforcements that Tokyo sent to Kagoshima were led by Admiral Kawamura Sumiyoshi, a high-born Satsuma samurai who was once Saigo's comrade-in-arms. Despite this history, Admiral Sumiyoshi would give his opponent no quarter. With just a few hundred of his desperate samurai remaining, Saigo ordered his men to muster whatever supplies they could before they occupied the hilltop of Shiroyama.

"WHEN FIELDED AGAINST DETERMINED IMPERIAL SOLDIERS WITH SWORD AND RIFLE THE REBELS CRUMBLED AND WERE SURROUNDED"

The last stand

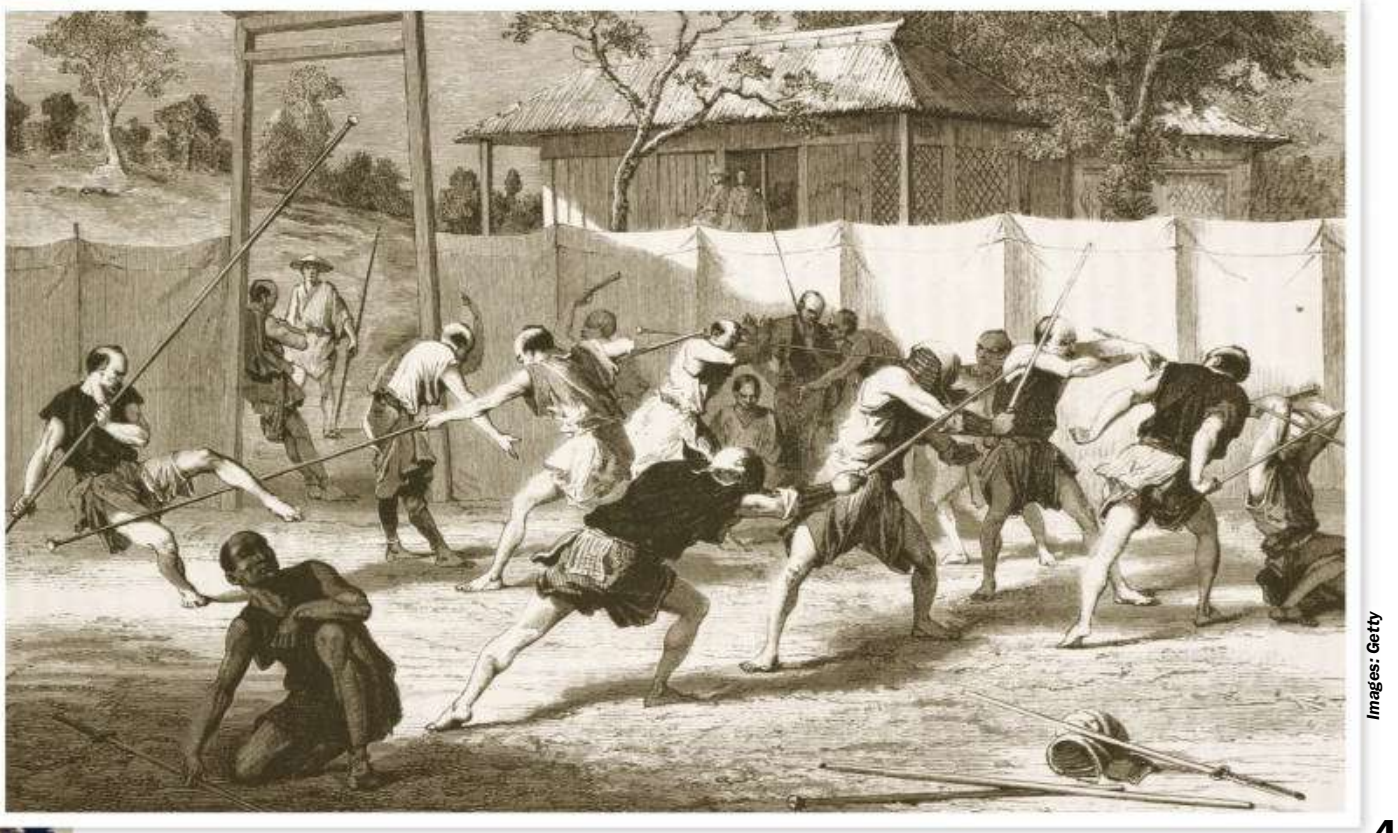
To the dismay of the imperial court and the embarrassment of the army generals in the field, Saigo and at least a battalion's worth of samurai had regrouped and swept into Kagoshima – a sleepy coastal town known for its black volcanic soil and aged rice vinegar production. Unlike Nagasaki, with its centuries-old cantonment for Western merchant ships, Kagoshima was closed off from the world and surrounded by forested hills. Its best-known landmark was not found anywhere in the city itself. Rather, a mere boat ride away from its shoreline towered the volcano known as Sakurajima whose regular eruptions showered the nearby countryside with darkened ash. When it rained the ash turned into vile muck, and when strong winds blew the same ash swirled into clouds that stung the eyes and shortened one's breath.

The rebels made their camp on the hilltop of Shiroyama, giving them a vista to observe the town below and situational awareness in every direction, but these advantages meant getting cut off from escape and any resupply. The tactical side of things was just as difficult. By the summer Saigo and his followers were little more than fugitives from justice and their families dispossessed of their homes. Elsewhere in the Hiuga domain a guerrilla war unfolded, to the frustration of the imperial troops – northerners with limited knowledge of the region. Those who led the rebellion had nothing to lose, which meant the shortage of ammunition for their Springfield muskets was taken for granted and there was little hope that clemency would be offered by the imperial court. Instead, up to 15,000 imperial soldiers were rushed to Kagoshima in a blatant show of force. These included the Japanese Navy, whose officers were shaped by advisers from Britain's Royal Navy.

The Battle of Shiroyama lasted three weeks and was a brief siege that, as providence would have it, spared the innocent residents

***Below:** A line of Japanese soldiers practise using their Snider-Enfield rifles with fixed bayonets. During the latter half of the 19th century huge quantities of Western small arms were imported by Japan*

***Bottom:** During the peaceful centuries of Tokugawa rule samurai clans were allowed to hone their martial arts skills in exclusive schools. The Shimazu clan in particular were fond of these shigakko academies for training young men in kenjutsu*



Images: Getty

***Above:** Despite being past his prime and with limited personal influence, Saigo Takamori enjoyed a reputation for being a tireless soldier*

***Above:** Count Kuroda Kiyotaka, who went on to become the second prime minister of Japan, helped suppress the Satsuma Rebellion of 1877*

of Kagoshima from its worst effects. We must dispel any thought of the ensuing events as a clash between 'traditional' samurai and 'modern' Japanese forces. Both sides used rifles as their primary armament and, among the rebels, these small arms were in poor condition after months of combat.

What truly set the imperial forces apart from the rebels was attire; the former adopted the fashion of European armies of the time – button-down jackets and maroon trousers – and their officers sometimes hung sabres on their belts rather than the samurai's katana. By comparison the Shimazu rebels had been reduced to a motley assemblage, half-starved and facing death. None of them wore any armour, as it had long since become obsolete; impressive to look at, perhaps, but of little usefulness in the tumult of infantry gunfights.

The samurai did carry personal weapons such as swords and spears in case of close-quarters combat, which never did happen during the battle, contrary to sensational newspaper reportage at the time. An advantage for the imperial army below Shiroyama was predictable enough. Aside from sheer numbers, they had howitzers and these medium-calibre artillery pieces, brought ashore from the navy's warships, did their work in reducing the crude fortifications erected by the defiant rebels.

After the first week of the Shiroyama stand-off Kagoshima itself was near-empty; the residents took flight as early as a month prior and some houses were destroyed. By all accounts the

"SAIGO COMMITTED A FORM OF RITUAL SUICIDE KNOWN AS SEPPUKU TO SPARE HIMSELF THE HUMILIATION OF SURRENDER"

officers of the imperial army were far more capable and cautious than their opponents atop Shiroyama. Rather than have their troops assault the rebels, who had the advantages of trenches and dugouts, an assault that could squander lives for little gain, mortars were brought as close as possible without exposing their crews to gunfire – a well-aimed percussion cap musket was still lethal at 200 metres.

The grim reality of the encircled samurai on Shiroyama was, since they established their position with haste, there were insufficient supplies to hold out for any meaningful period of time. For one, their food supply was almost non-existent and a few days into their ordeal starvation and weakness set in. The standard meal for a soldier in the field at the time was a cup of warm tea and a thin rice gruel. This was certainly fed to the army. Among the samurai there is little evidence they'd brought uncooked rice with them, and without rice only sweet potatoes and fermented vegetables counted as the next most easily transportable food, unless they dug up roots and slaughtered their horses.

In addition, the 49-year-old Saigo was in poor shape; exhausted by the flight to Kagoshima, he spent the days in a shallow ditch that barely protected him from the elements. Posthumous illustrations of the rebel leader tend to glamorise him in colourful attire and a distinct white sash tied around his head. This was the romance of Satsuma, but the truth of the matter was Saigo and his holdouts were facing certain death.

What bought them time was not geography, but the prudence of the estimated 15,000 imperial troops below Shiroyama. The cautious Admiral Kawamura, for example, was determined to avoid sending his forces on a headlong assault at the samurai and waste precious lives. Trained soldiers are expensive and the mood in Tokyo was far from encouraging; seven months of insurgency had exasperated the Meiji court as the war continued to drain the state budget.

Samurai diehards

The doomed samurai atop Shiroyama realised their last remaining hope for survival vanished when a heavy bombardment from the warships anchored outside Kagoshima nearly wiped them out. On the dreadful day of 10 September the rebels suffered at least 200 casualties and their leader Saigo was himself ailing from sickness. But Admiral Kawamura was steadfast in his mission to annihilate the rebels and he went as far as rebuffing an attempt by Shimazu clan emissaries who inquired about a possible ceasefire.

The last phase of the battle was a gruesome mop up. Eager to wipe out the samurai diehards in a final push the imperial forces readied an intense bombardment and, on the morning of 24 September, launched an all-out assault with infantry. On they came in unbroken lines through the fog and smoke with rifles brandished, lethal and unstoppable. The samurai behind the palisades managed a feeble resistance; they were low on ammunition and morale but custom dictated they couldn't abandon their leader and face the ultimate shame – to be held captive by peasant conscripts and rival samurai from the Satsuma region.

There was no drama or poignancy in this final spurt of violence, only a miserable end for the rebels. When Saigo was shot near his groin the exhausted leader committed a form of ritual suicide known as seppuku to spare himself the humiliation of surrender. With the decorum of a man nearing his end he stabbed himself in the gut and his 'second', a loyal attendant, finished the job with a swift beheading. There was a hurried effort to conceal the severed head of the rebel leader but this too was collected among the corpses in the overrun encampment. With little fanfare or celebration the victorious imperial troops retrieved the bodies of the fallen – casualties were light on their side – and buried them in a mass grave.

No other civil disturbance followed the Satsuma Rebellion and the influence of the Shimazus and other samurai clans was never restored, although a local legend soon emerged from the episode. As soon as the rebellion was crushed the events were dramatised in pictorial form through ukiyo-e – woodblock prints – an enduring form of Japanese media where vivid illustrations are accompanied by text, and these circulated in newspapers and magazines at the time. It was through ukiyo-e prints that the Shimazu rebels attained a place in history they never deserved: as the vengeful samurai pitted against the Westernising state being ushered in by the Meiji court. The irony is the rebellion validated the government as it showed the rest of Japan how it managed a national crisis.

But Saigo's dreams, coloured by equal amounts of nationalism and xenophobia, did not die with him. The next 20 years saw the Satsuma region, along with its coastal cities, become centres for marine and naval shipbuilding. The same Admiral Kawamura who gave the rebels no quarter other than a decent burial for those killed spent the rest of his career planning the enlargement of the Japanese Navy. A generation of Satsuma samurai, an uncounted ultra-nationalist clique who believed in foreign conquest, became naval officers and participated in future wars. Once Japan embarked on its long series of foreign conquests in Asia, beginning with a campaign against China in 1895, it was the former samurai of Kyushu's prefectures who led the army and navy. This carried on through the Russo-Japanese War until WWII.

***Right:** After his death, in Japanese culture Saigo Takamori became a symbol of devotion to principle*

***Bottom:** The emperor, in an admiral-style uniform, and the empress, in traditional garments (left panel, both seated) oversee the victory celebrations*

FURTHER READING

- A.H. Mounsey, *The Satsuma Rebellion*
- Gabrielle Esposito and Giuseppe Rava, *Japanese Armies 1868-1877: The Boshin War and Satsuma Rebellion*

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“HIS COMRADES WERE SO INSPIRED THAT THE BRIDGEHEAD WAS HELD FIRM AGAINST ALL ENEMY ATTACKS”

VC citation

Heroes of the Victoria Cross

ERNEST ‘SMOKEY’ SMITH

In October 1944, as the Allies fought to establish a bridgehead across Italy’s Savio River, a roguish private challenged an armoured column

WORDS **ALEX BOWERS**

The Mark V Panther was close, but not close enough for Ernest ‘Smokey’ Smith to fire his PIAT (Projector, Infantry, Anti-Tank) into the beast’s hull. Pressed up against the side of the ditch beside his wounded comrade, ignoring the command car already out of action and two self-propelled guns (SPGs) being engaged elsewhere, he fumbled with the cumbersome 15kg weapon and waited for the right moment. The tank lurching towards him continued to spit rounds into the rain-sodden earth as it had when it struck the now-groaning Private James Tennant. But Smokey, a notoriously insubordinate soldier from the Seaforth Highlanders of Canada – having been promoted and demoted nine times – remained undeterred by the Germans’ 26th Panzer Division column in front of him. Finally, with the Panther about nine metres away, he stood in full view of the advancing enemy, aimed his shoulder-braced launcher and took his shot.

It was the night of 21-22 October 1944, and the Canadians, making up part of the British Eighth Army, were attempting to establish a bridgehead across the Savio River in northern Italy’s Romagna region. Their plan thereafter was to continue their right hook around Cesena,

***Above:** When Smokey visited Dieppe, France, for the 60th anniversary of Operation Jubilee in 2002, he was the last surviving holder of the Canadian Victoria Cross*

a city haemorrhaging German troops who, not wishing to risk encirclement, were withdrawing toward Ravenna. However, a mere five hours earlier, torrential rain had caused the river to swell almost two metres, all but preventing Allied armour from crossing the muddy, slippery high banks. The Seaforths on the right flank were alone when it came to fending off enemy tanks, although they did have the newly formed tank-hunting platoon that included one officer, one sergeant, one corporal and 14 other ranks – Smokey among them. Four two-man crews had been tasked with operating the PIATS, long loathed by the Canadians, while six carried Thompson sub-machine guns and No.75 grenades to offer protection.

Despite his reputation for getting into trouble, Smokey had gained enough combat experience to know what to do. Born in New Westminster, British Columbia, in 1914, he had enlisted in the Canadian Army in March 1940. “I figured the war would be over in three months and I’d see Europe without paying for it,” the former contractor remarked after the conflict’s conclusion. “Six years later, I was still seeing Europe.” His first taste of action came in July 1943 when the First Canadian Infantry Division landed alongside British and American forces

Images © Alamy, Wiki / PD / Gov

for the invasion of Sicily (Operation Husky). There, he sustained shrapnel injuries during fighting near Mount Etna, whereby he was evacuated to recover. Smokey – so nicknamed because he used to 'smoke' his school friends at sprinting races as a child – re-joined his unit for what would become one of Canada's greatest tests: The Battle of Ortona. Liberating the Italian port town on the Adriatic coast would prove to be such a bloody affair that it was dubbed 'Little Stalingrad' due to the fierce house-to-house, hand-to-hand combat over eight days in December 1943. In one instance amid the relentless urban warfare, Smokey had prevented a fellow soldier from picking up a German knife propped up in a jar of wheat grains. He then showcased his reasoning by striking the would-be souvenir off the windowsill for the booby trap to explode in the street.

Smokey had understood the enemy back in Ortona. He had understood them during his missions for potential German prisoners in the cruel winter stalemate of late 1943 and early 1944. The 30-year-old hell-raising private understood them still when his PIAT released its 1.1kg hollow-charged projectile at the Panther opposing him just off the Cesena-Ravenna road.

The shell struck true, stopping the tank in its tracks. Yet unfortunately for Smokey it failed to prevent the ten German infantry riding on the armour's back from dismounting and facing him with their MP-40s and stick grenades. Isolated from the rest of his platoon that had been caught up in the skirmish a short distance away, and with Tennant in no state to help, Smokey grabbed his Thompson and opened fire at point-blank range. The spray of bullets downed four enemies, leaving the remaining six to flee. But there would be no respite, for it was then that a second Panther, out of PIAT range and accompanied by numerous grenadiers, took notice of Smokey. The tank's main gun lurched into action as scores of infantry charged forward. But instead of making a hasty retreat to safety, Smokey reloaded his sub-machine gun and tore into his assailants. "They must have figured there was a whole army there because they could have wiped me out in no time if they'd known I was practically all by myself," he said. Nevertheless, by the end of the struggle it was the Germans, not Smokey, on the backfoot as they retreated in disorder. All that was left was to single-handedly drag Tennant out of harm's way while under intense fire, at which point Smokey managed to summon medical assistance. Once he knew Tennant was in caring hands and would survive, Smokey returned to the battle in preparation for a counterattack that never materialised.

By the end of the night the armoured column had been decimated. Among the burning shells was the Panther confronted by Smokey, both SPGs, and other vehicles that had tried to escape but had either been challenged by the tank-hunting platoon or bogged down in the mud and water. Cesena was to be secured by the British Eighth Army, enabling further advances north towards the Ronco River and beyond. The 26th Panzer Division that had put up such stout resistance, however, would live to be a thorn in the Canadians' side until February 1945. In the meantime, countless Seaforth Highlanders deserved recognition for their efforts, not least the exploits of Smokey. His citation for the Victoria Cross – the third awarded to a Canadian in Italy after Paul Triquet and John Mahony, as well as being the only one given to a Canadian private in WWII – praised him for his "dogged determination, outstanding devotion to duty and superb gallantry", recognising that "his comrades were so inspired that the bridgehead was held firm against all enemy attacks".

Prior to receiving the medal from King George VI at Buckingham Palace, Smokey was placed in a jail cell to prevent him from getting into any mischief. He recalled: "When I was first locked up I was thinking: 'What the hell?' But then they gave me a couple of beers and I was very

"TO GENERATIONS OF CANADIANS, SMOKEY SMITH STOOD FOR COURAGE AND RESOLVE AT A TIME OF GREAT NEED, AN EXAMPLE OF STRENGTH OF CHARACTER, LOYALTY AND DUTY"

Canadian Prime Minister Paul Martin

Six Canadian VC recipients from left to right: Frederick George Topham, Ernest 'Smokey' Smith, Frederick Albert Tilston, Paul Triquet, David Currie and John Mahony

Ernest 'Smokey' Smith married in 1947, had two children, and re-joined the forces in the 1950s. He later opened a travel agency with his wife

happy.” More pints would be bought for him in the London pub he subsequently visited, where all the VC recipient had to do was flaunt his red ribbon at the bar.

A hero’s welcome greeted Smokey back in New Westminster. Settling down to enjoy a few years of respite from the military, he re-joined in the 1950s to fight in the Korean War. Unknown to him at the time, his iconic status would prevent him from being thrust back into active service. He stayed with the army all the same, retiring in 1964 a sergeant – at last able to retain an NCO rank. In the following years Smokey started a travel agency with his wife, Esther, whom he’d married in 1947, and together they operated the Vancouver-based

Thousands of people crowded the streets of Ottawa for Smokey’s funeral procession in 2005. His ashes were scattered in the Strait of Georgia, British Columbia

business for several decades alongside raising their two children. He was appointed a Member of the Order of Canada in 1995. With the passing of Dieppe Raid veteran Cecil Merritt in 2000, Smokey became the last surviving holder of the Canadian Victoria Cross. He passed away peacefully on 3 August 2005, aged 91.

Thousands of tributes poured in from across the country and the entire world for the late, great – if somewhat reprobate – man. His coffin, draped in the Canadian flag, was transported by a funeral procession surrounded by huge crowds, and lay in state at Canada’s Parliament Hill in Ottawa. Among the attendees at the House of Commons was then-Canadian Prime Minister Paul Martin, who said: “To generations of Canadians, Smokey Smith stood for courage and resolve at a time of great need, an example of strength of character, loyalty and duty… [He] remained… a loyal comrade-in-arms to all his fellow veterans. His passing marks a milestone in Canadian history… We are a better nation because of men like Sgt Smokey Smith. He was – and will always be – a much-respected and remarkable Canadian hero.”

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Infantrymen of the 48th Highlanders of Canada prepare to attack on the Italian front near San Leonardo di Ortona, 10 December 1943

IN THE FOOTSTEPS OF...

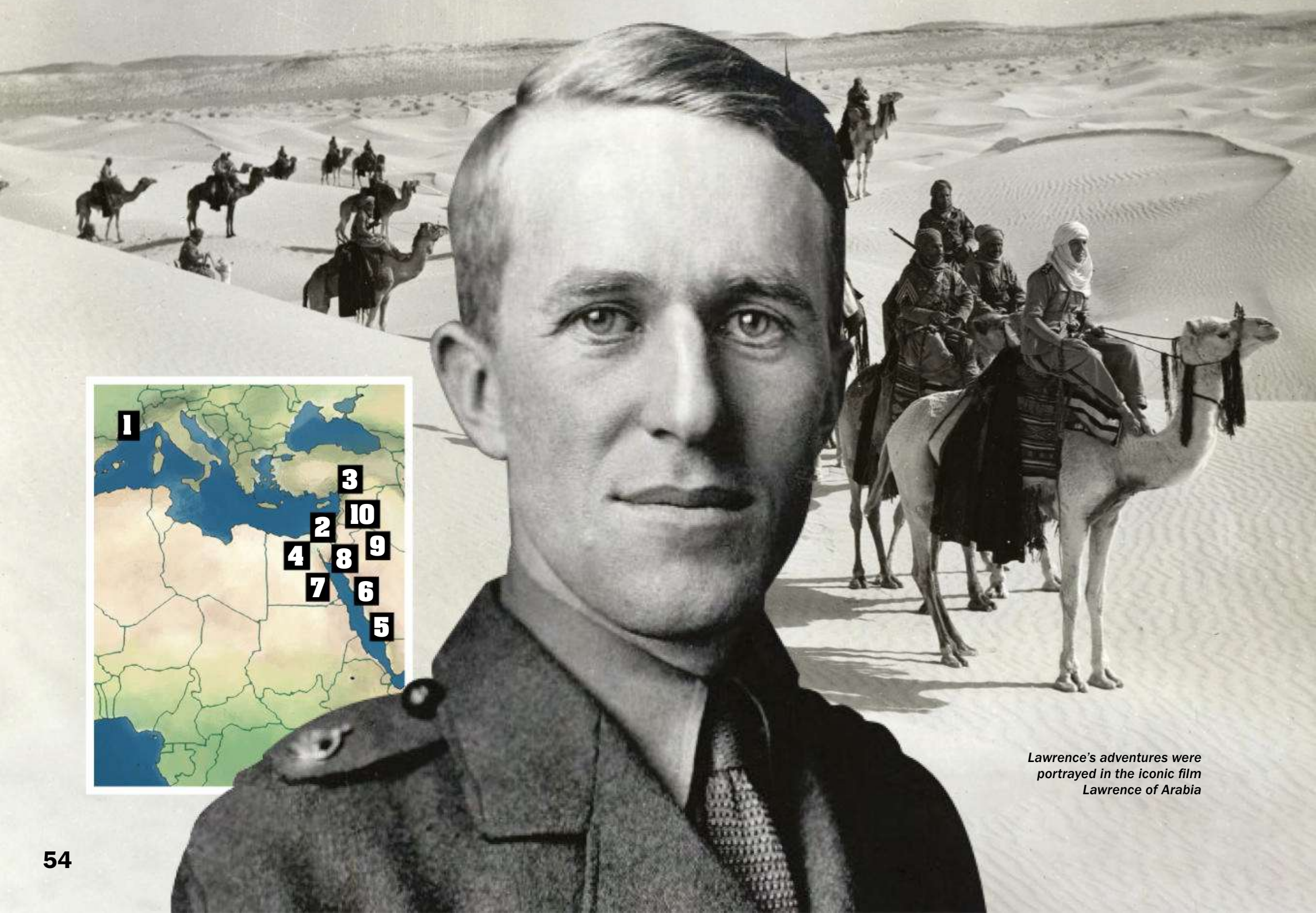
T.E. LAWRENCE

In late 1916, a little-known archaeologist arrived in the Red Sea port of Jeddah. What started as a trouble-shooting mission would transform the Middle East

WORDS **JAMES BARR**

On 16 October 1916, midway through WWI, a small British ship carrying two British officials arrived off Jeddah. The port was the gateway to the Hejaz, the mountainous region that was home to the two most important cities in Islam: Mecca and Medina. “When at last we anchored in the outer harbour, off the white town hung between the blazing sky and its reflection on the mirage, then the heat of Arabia came out like a drawn sword and struck us speechless,” wrote one of them. His name was TE Lawrence.

The British encouraged the Arab inhabitants of the Hejaz to revolt against the Turks, but by October 1916 the uprising seemed on the brink of failure. As the British started blaming one another, Lawrence was sent to assess the situation. It was supposed to be brief, and Lawrence’s conclusions had already been decided. All that he needed was some first-hand experience to make his argument unanswerable. However, on the voyage down, he had been practising his pistol shooting. It was a telling sign of Lawrence’s ambitions.



Lawrence’s adventures were portrayed in the iconic film Lawrence of Arabia

The ramparts of Aigues-Mortes inspired Lawrence to take his trip east

YEAR VISITED: 1908

AIGUES-MORTES

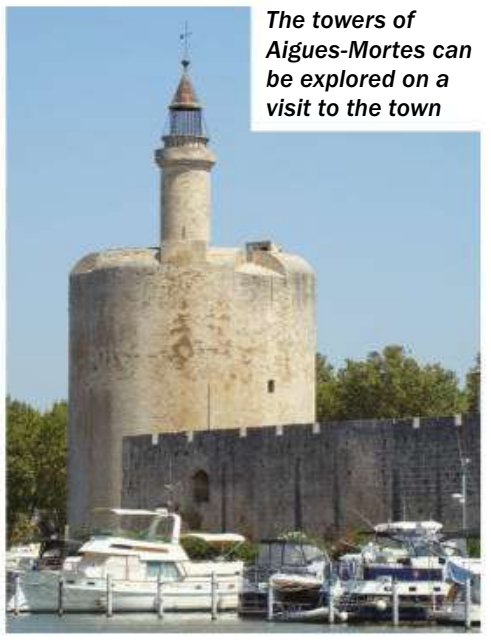
1 At the end of his first year as a student at Oxford University, in the summer of 1908, Lawrence, then nearly 20 years old, embarked on a 3,800km cycle ride across France. He had decided to write a thesis on medieval castle architecture, but the fieldwork also provided a reason not to spend the summer holiday with his domineering mother, with whom his relationship was increasingly strained.

Lawrence cycled from Normandy to the Mediterranean and back. On 1 August, he reached Aigues-Mortes, the walled town that Louis IX had built in the mid-13th century to give himself direct access to the Mediterranean. “It is a lovely little place, an old, old town,” Lawrence said in a letter home, but which he described as now “deserted by the world and is decaying fast”.

Now restored, Aigues-Mortes remains a charming, atmospheric town, but with one crucial difference. The town’s name derives from the Occitan for ‘stagnant water’ and its chief drawback a century ago was its mosquitoes: one of them would actually infect Lawrence with malaria, a disease that would plague him intermittently for the rest of his life.

However, malaria was not the only bug that Lawrence caught. As he knew, the port was the departure point of the Seventh Crusade in 1248, and on reaching it he experienced an epiphany. Bathing in the Mediterranean the day after his arrival, it occurred to him that “the glorious East” seemed suddenly “all within reach of me. Oh I must get down here – farther out – again.”

A painting of Lawrence some years later



The towers of Aigues-Mortes can be explored on a visit to the town

YEAR VISITED: 1909

SAHYUN CASTLE

2 Against all advice, Lawrence pursued his dream of going “farther out” the following summer with a trip to the Levant, this time to study Crusader castle architecture. Landing at Beirut in July 1909, armed with little more than a Mauser pistol, some maps and a water bottle, he carried out the entire journey on foot.

The castle of Sahyun, which commands a ridge in the wooded hills east of the Syrian port of Lattakia, completely astounded Lawrence when he arrived. “It was, I think, the most sensational thing in castle building I have seen,” he wrote home. In order to fortify a site first used by the Phoenicians, the Crusaders had cut a 30 metre-deep moat right through the ridge, which left a narrow pinnacle within it to support a bridge. The castle of Sahyun was constructed in the 12th century, but its extraordinary moat was still not enough to repel Saladin and his forces when they attacked in 1188.

A 19th century depiction of the port of Lattakia

The castle is also known as the citadel of Salah Ed-Din

Carchemish is on the border between Turkey and Syria. It was the scene of heavy fighting throughout 2016

YEAR VISITED: 1911-14

CARCHEMISH

3 In 1910, the Ottoman government gave the British Museum permission to excavate a huge tell (an artificial mound) on the banks of the Euphrates at Carchemish, on the border between modern Syria and Turkey. Lawrence had passed the site the previous year and this, combined with the fact that the director of the expedition, his mentor DG Hogarth, recommended he take part, made for an unmissable experience.

In this era, archaeological discoveries made front-page news. Carchemish looked promising because it lay on the frontier of the much earlier Hittite empire, and Hogarth and Lawrence hoped that they might find a Rosetta-stone-like record that would enable them to decipher the Hittite script and hieroglyphs.

In that sense, the excavations were a failure, but they did reveal the remains of a substantial palace. More significantly the experience left Lawrence with a good grasp of colloquial Arabic and a deep understanding of, and admiration for, the local workforce, which he spurred on by firing shots in the air with his pistol whenever an interesting find was unearthed.

The explorer Gertrude Bell visited the site at this time. "An interesting boy," she remarked of Lawrence. "He is going to make a traveller."

Artefacts from Carchemish are in the UK's British & Ashmolean Museums

YEAR VISITED: 1914

CAIRO

4 Turkey's declaration of war on Britain and France in November 1914 made Lawrence's pre-war expertise invaluable: he was posted to Cairo to work in the new military intelligence office, in the now-derelict Savoy Hotel.

Lawrence was delighted to be back in a city that he loved, but he had no time for sightseeing. During 1915, his desk job began to grate after two of his brothers were killed fighting on the Western Front. "They were both younger than I am," he told a friend, "and it doesn't seem right, somehow, that I should go on living peacefully in Cairo."

In November 1914, the Ottoman sultan had also declared a jihad against his enemies in a bid to provoke disturbances in Egypt and India that would distract the British. Lawrence was one of those who advocated support for an Arab uprising in Mecca that was designed to blunt it.

Visit the Egyptian Museum, which Lawrence wished he'd had time to see

The railway blockhouses that were fortified after the revolt broke out in 1916

"IT IS ESTIMATED THE TURKS HAD FAR MORE SOLDIERS TRYING TO PROTECT THE HEJAZ RAILWAY THAN THEY DID ACROSS THE JORDAN, DEFENDING PALESTINE FROM THE BRITISH"

Lawrence photographed in traditional Arab dress, c.1918

YEAR VISITED: 1916

WADI SAFRA

Hamra lies on Route 60 between Badr and Medina

5 Director David Lean placed Lawrence and Feisal I of Iraq's first encounter in the open desert, but in fact the two men met in the mud-brick village of Hamra in the Wadi Safra in 1916. It had strategic importance at the time as it was on the road through the mountains from Medina, which was still held by the Turks.

After his arrival in Jeddah in October 1916, Lawrence had managed to persuade Sharif Hussein, the ruler of Mecca, to allow him to assess the situation and to meet Hussein's son Feisal, who expected a Turkish counterattack at any time.

The mountains here rise more than 2,000m, and up the road beyond Hamra towards Medina you can see two spiky peaks. Lawrence returned, convinced that the mountains formed a formidable barrier and that the Arabs were natural guerrillas.

YEAR VISITED: 1917

HEJAZ RAILWAY

6 On 28 April 1917, Lawrence reached Abu Na'am and got his first glimpse of the Hejaz Railway. Completed nine years earlier the single-track railway linked Medina to Damascus. Now it had become the lifeline of the Turkish garrison in Medina. If this iron umbilical cord were severed, then the Turks would be forced to surrender. The question, which Lawrence mulled as he surveyed the line through his binoculars, was what best to attack? He decided to cut the railway each side of the blockhouse, place a mine beneath the track and attack with his artillery. In the chaos, the line was put out of action for three days.

Lawrence realised that it would be very difficult to cut the railway permanently. He proposed instead a guerrilla war that would draw in vast numbers of Turks to fight a losing battle. By the war's end, it is estimated the Turks had far more soldiers trying to protect the Hejaz Railway than they did across the Jordan, defending Palestine from the British.

Sherif Shakir returns from the raid on Abu Na'am with his army

Emir Feisal bin Husain and al-Hashimi's army approach Wajh

YEAR VISITED: 1917

AL WAJH

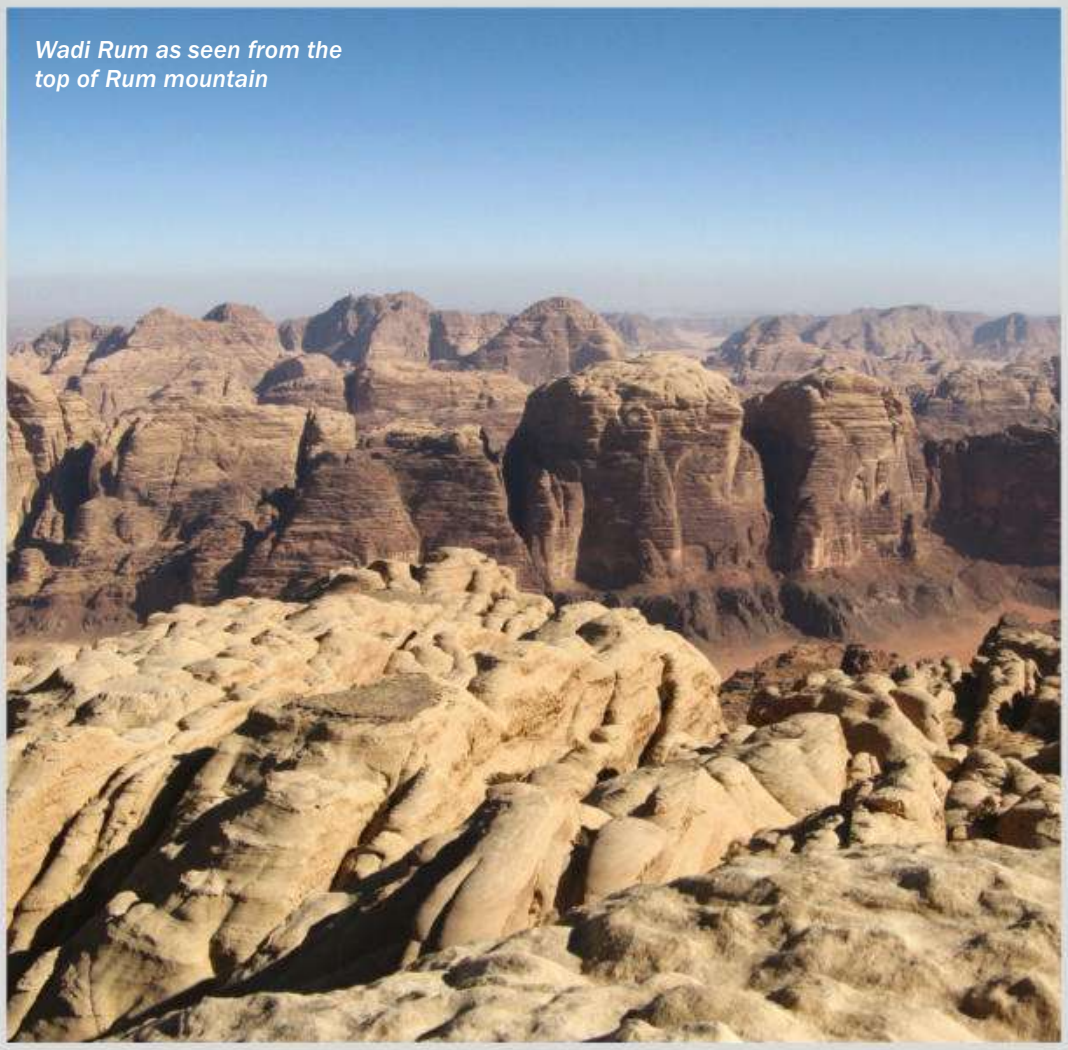
7 Lawrence and Feisal seized Al Wajh in January 1917, and the little fishing port then became their base for operations against the railway for the next six months.

However, Lawrence quickly fell out with his colleagues over tactics for the attack on the railway. Whereas they wanted a decisive 'spectacular' that would break the railway once and for all, Lawrence realised that this idea would undermine his own plan for the uprising to spread to the gates of Damascus, far to the north.

From the outset, Lawrence believed that British and Arab interests overlapped. The Arabs yearned for independence and the British wanted to keep their rivals – particularly the French – out of the eastern Mediterranean where they might be a threat to Egypt. A successful Arab revolt was in Britain's interests.

In April 1917 in Wajh, Lawrence met the man who threatened this ambition. A year earlier Sir Mark Sykes had cut a secret deal with France to divide the Middle East between them. When Lawrence found out, he was appalled.

TE Lawrence atop a camel at Aqaba in 1917



Wadi Rum as seen from the top of Rum mountain

YEAR VISITED: 1917

WADI RUM

8 In July 1917, Lawrence and a party of Arab tribesmen captured the strategically important port of Aqaba. Riding across the Sinai to Suez, Lawrence personally took the news of the astonishing, costless achievement to British headquarters in Cairo. There, he persuaded General Edmund Allenby to support his ambitious plan to expand the revolt into northern Syria. In exchange, Lawrence promised Allenby that he would stop the Turks from using the Hijaz railway to mount a counterattack on Allenby's vulnerable communications.

To ensure this, Wadi Rum, in what is now southern Jordan, became an important base for raids against the railway, which was less than 80km away. There was abundant water and the maze of sandstone outcrops made it a perfect hiding place from the Turks. "We entered Rum at last," wrote Lawrence, remembering the return from one raid, "while the crimson sunset burned on its stupendous cliffs and slanted ladders of hazy fire down the walled avenue."

The flat, firm, stony desert east of Wadi Rum enabled Lawrence to experiment with a new type of mechanised hit-and-run warfare. From now on, the British would attack the railway using Rolls-Royce armoured cars and light artillery mounted on Talbot trucks. Lawrence's description of these tactics in his post-war memoir *Seven Pillars Of Wisdom* would influence and inspire Special Air Service operations in North Africa during World War II.

YEAR VISITED: 1917

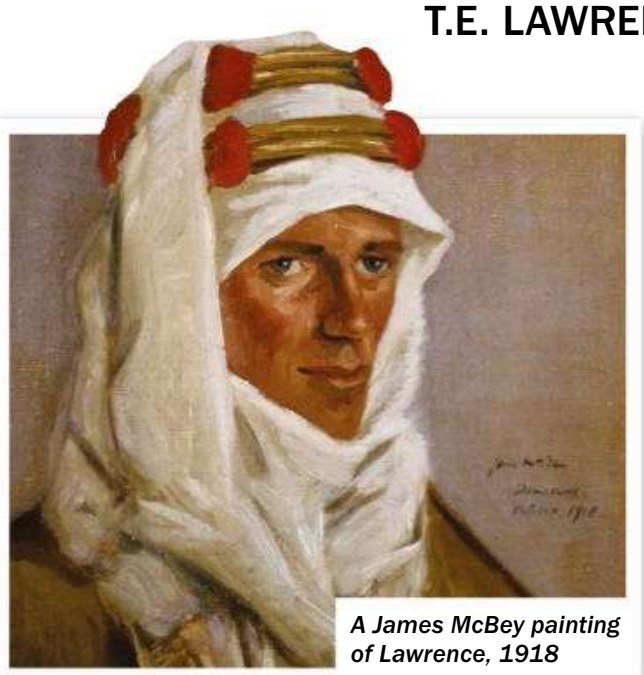
AZRAQ

9 Today, Azraq – the Arabic word for blue – is a grimy truck stop on the main road from Amman to Baghdad. 100 years ago, the 13th-century castle offered a refuge on the edge of a wild and tangled oasis, where leopards and hyenas roamed and black kites swirled over the lakes from which the place gained its name.

Through the winter of 1917, and again before the climax of the war in September 1918, Lawrence used the castle as a hideout, staying in a vaulted upper room above its southern gate.

In November 1917, after failing to destroy a strategically-important viaduct across the Yarmuk valley (along which is today's border between Jordan and Syria), Lawrence set out to investigate Deraa. There he would later claim that he was captured by the Turks.

Front elevation and portion of south side of Qusayr Amra



A James McBey painting of Lawrence, 1918

YEAR VISITED: 1918

DAMASCUS

10 Lawrence drove into Damascus on 1 October 1918, intending to establish an Arab government. By the time that Allenby's troops arrived, he was able to present them to the Arab governor of the city. From there, he went to find Saladin's tomb, next door to the Umayyad Mosque. Twenty years earlier, Kaiser Wilhelm had visited, giving the city an ornate gilt wreath commemorating his visit. This Lawrence now took off the tomb. He would later give it to the Imperial War Museum; on an accompanying chit he recorded that it had been "removed by me, as Saladin no longer required it".

On 3 October, Lawrence introduced Allenby to Feisal. Allenby had been sympathetic to the Arabs' political ambitions, but now informed the Arab leader that "France was to be the protecting power over Syria" and that Feisal would have to accept their guidance and backing. It was a bitter disappointment to Lawrence, who set out for London to continue his fight there.

The Umayyad Mosque in Damascus , next to Saladin's tomb, which Lawrence visited

Images: Getty, Wiki / PD / Gov

M18 HELLCAT TANK DESTROYER

The US Army's 76mm Gun Motor Carriage first saw service with the Allies in 1944

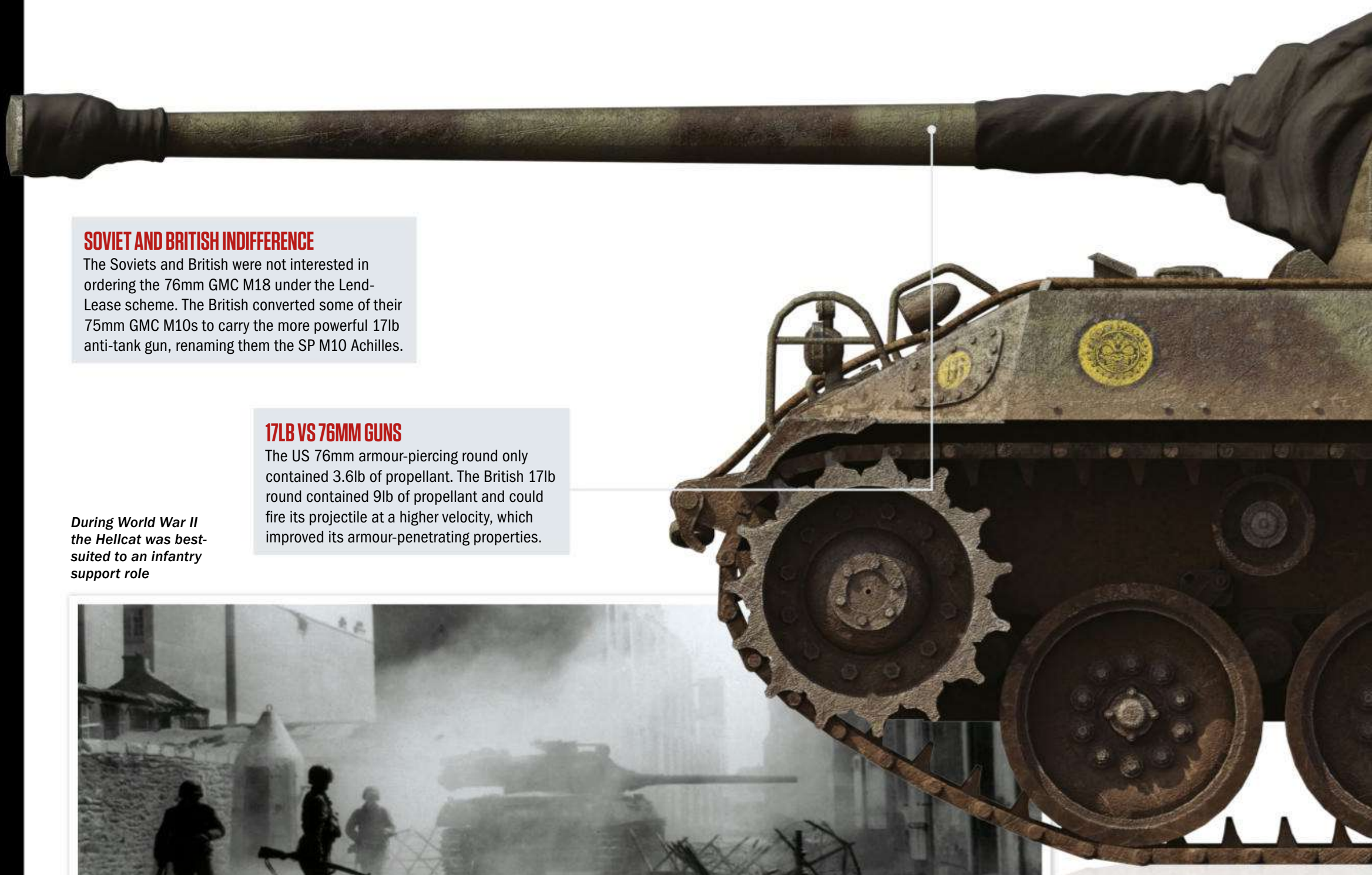
WORDS **CRAIG MOORE**

SOVIET AND BRITISH INDIFFERENCE

The Soviets and British were not interested in ordering the 76mm GMC M18 under the Lend-Lease scheme. The British converted some of their 75mm GMC M10s to carry the more powerful 17lb anti-tank gun, renaming them the SP M10 Achilles.

17LB VS 76MM GUNS

The US 76mm armour-piercing round only contained 3.6lb of propellant. The British 17lb round contained 9lb of propellant and could fire its projectile at a higher velocity, which improved its armour-penetrating properties.



During World War II the Hellcat was best-suited to an infantry support role

© Alamy

The name Hellcat was never approved by the US Army during World War II. The vehicle's official designation was 76mm Gun Motor Carriage M18, but the publicity department at the Buick Motor Division of General Motors came up with the name Hellcat for its advertising campaign.

Buick built 2,507 M18s and it was the fastest tracked vehicle of the war, designed to be a hard-hitting and manoeuvrable tank destroyer. Its thin armour meant that M18 was not designed to be at the front of an attack. In defence it would guard the flanks of a position and scoot to a new location once it had fired at the approaching enemy before they could return fire. It also acted as an emergency resource that could be rushed to deal with any enemy breakthrough.

The M18's 76mm gun proved inadequate at penetrating the frontal armour of the German heavy tanks but could knock most out by aiming at their side and rear armour. It was more often used in an infantry support role as it could directly and indirectly fire high-explosive shells at targets.

76MM GMC M18 HELLCAT

PRODUCTION	FROM JULY 1943
ORIGIN	USA
LENGTH	6.65M (21FT 10 IN)
MAX SPEED	80KM/H (50MPH)
RANGE	241KM (150 MILES)
ENGINE	CONTINENTAL R-975-C2 9-CYLINDER AIR-COOLED RADIAL 400HP ENGINE
CREW	5 MEN (GUN-COMMANDER, GUNNER, LOADER, DRIVER, CO-DRIVER)
MAX ARMOUR	13MM
PRIMARY WEAPON	76MM M141, M1A1C OR M1A2 GUN

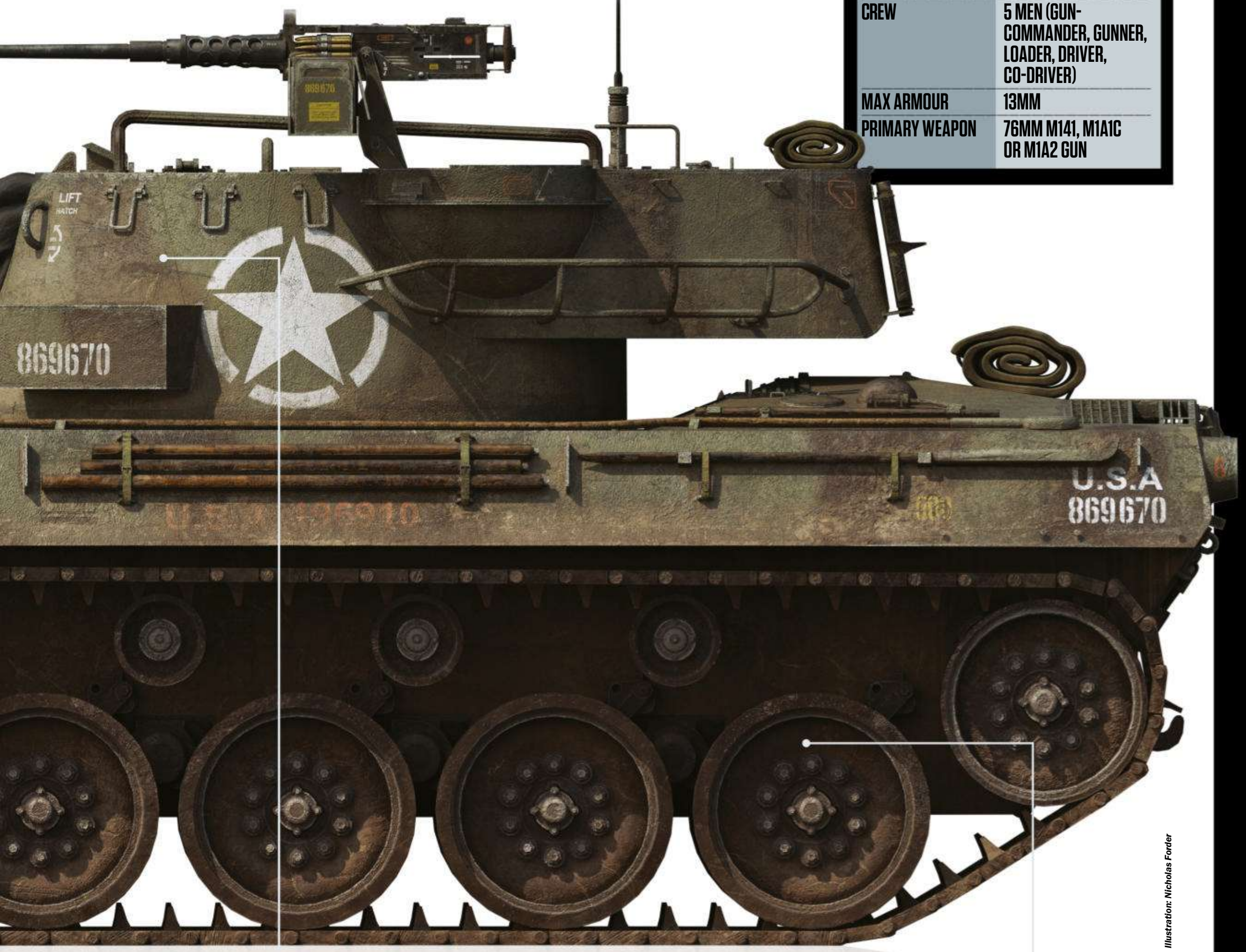


Illustration: Nicholas Forder

OPEN TURRET

The turret was open-topped, but a canvas cover could be strapped down over it. The lack of an armoured roof reduced the weight of the M18 but made the crew vulnerable to snipers and high-explosive air-burst shells.

"IT WAS THE FASTEST TRACKED VEHICLE OF THE WAR, DESIGNED TO BE A HARD-HITTING AND MANOEUVRABLE TANK DESTROYER"

ADVANCED SUSPENSION

The Hellcat was the first American armoured vehicle to use torsion bar suspension rather than the standard vertical volute spring suspension. Its five large road wheels made it easily identifiable from other US tank destroyers and tanks.

The gun breech was fitted at an angle to make it easier to insert shells

The 76mm shells were stored in ready racks next to the machine gun ammunition boxes

ARMAMENT

The initial batch of 1,857 M18s had a 76mm M1A1 gun. After complaints about excessive blast, an improved 76mm M1A1C gun was introduced with the end of the barrel threaded so a muzzle brake could be fitted later. 76mm guns fitted with a muzzle brake in the factory were designated M1A2 (only 700 were produced.) The main gun could fire high-explosive shells as well as armour-piercing rounds. A .50 cal (12.7mm) Browning M2HB machine-gun was mounted on top of the turret.

On the left of the main gun was the gun sight. A canvas dust cover protected the mantlet and gun

A Hellcat supporting US infantry in northern Germany fires on an enemy position, April 1945

The light weight of the M18 enabled it to cope with muddy and snowy conditions better than other armoured vehicles

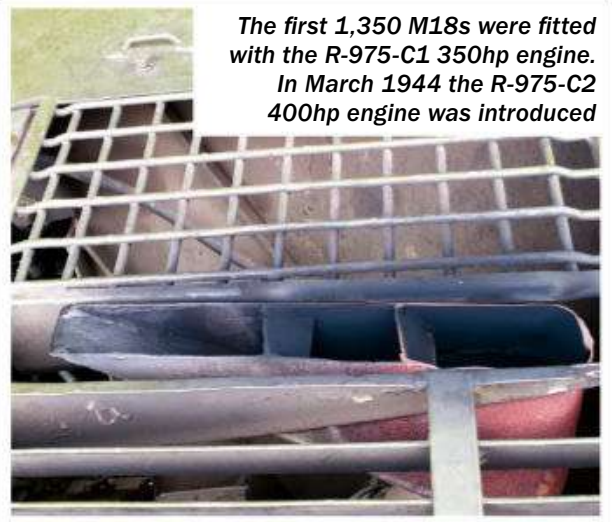
DESIGN

The hull was a completely welded structure. The armour thickness ranged between 4.8mm to 25.4mm, which could only protect the crew from small arms fire and shrapnel. The hull was divided into two compartments: the fighting and driving compartment at the front and the engine compartment at the rear. These compartments were separated by a bulkhead. The front of the hull sloped downwards at the top and upwards at the bottom. A hull machine gun and a coaxial machine gun were not fitted to the Hellcat.

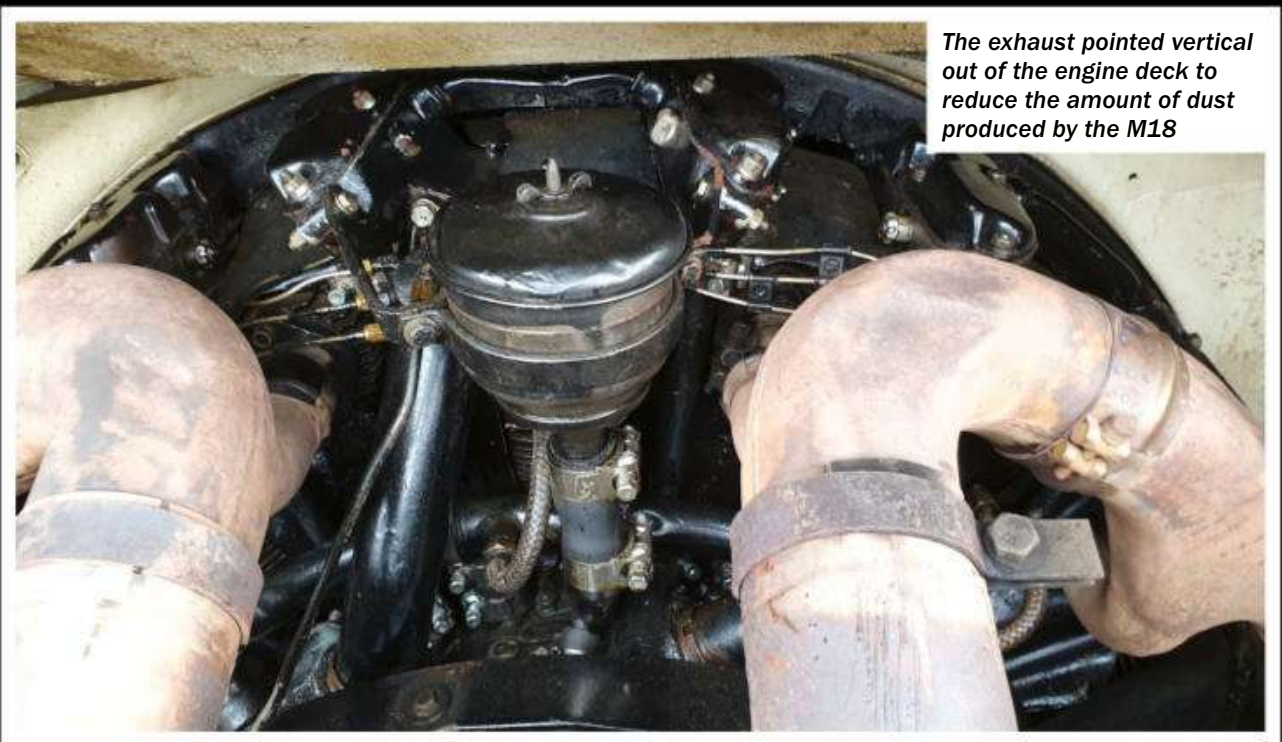
"THE LIGHT ARMOUR OF THE M18 ENABLED THE ENGINE TO PROVIDE ENOUGH POWER TO GIVE A MAXIMUM ROAD SPEED OF 80KM/H"

ENGINE

The 76mm GMC M18 was powered by a Continental R-975-C2 nine-cylinder air-cooled radial 400hp engine. The Wright R-975 Whirlwind engine was originally designed by the Wright Aeronautical division of Curtiss-Wright as an aircraft engine. In 1939 the US Army chose Continental Motors to build a version of the R-975 engine under licence that could power armoured fighting vehicles. They would manufacture over 53,000 R-975 engines. The light armour of the M18 enabled the engine to provide enough power to give a maximum road speed of 80km/h (50mph).



The first 1,350 M18s were fitted with the R-975-C1 350hp engine. In March 1944 the R-975-C2 400hp engine was introduced



The exhaust pointed vertical out of the engine deck to reduce the amount of dust produced by the M18

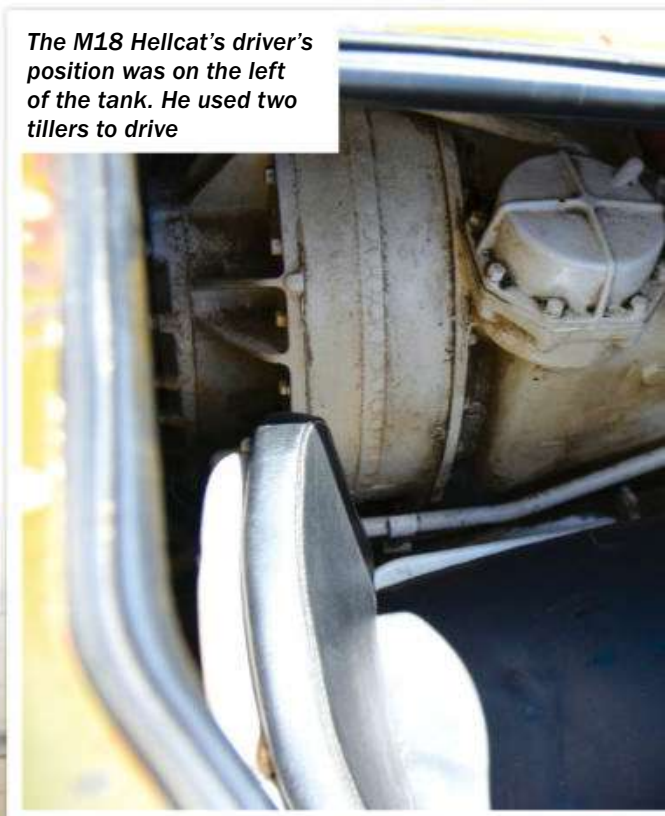
All images © Craig Moore / Getty

CREW COMPARTMENT

The driver sat on the left at the front of the vehicle and the co-driver was to his right. The driver steered the tank using two large tillers. The co-driver also had two tillers so he could take over driving if necessary. The gunner sat on the left of the turret at the front, and the gun-commander sat behind him and operated the .50 cal M2 Browning machine gun that was mounted on the left rear of the turret. The loader's position was on the right of the main gun.

The tank had a low profile and could use natural cover better than taller vehicles

The co-driver sat on the right side of the driver and was provided with an identical set of driving controls



The M18 Hellcat's driver's position was on the left of the tank. He used two tillers to drive

The success of the M18 was attributed to its crews' skill and training rather than the tank's design

SERVICE HISTORY

In May 1944, five M18s were shipped to Italy. The evaluation reports stated it was excellent in a reconnaissance role due to its speed but it was not as good as the M10 in a tank-destroying role, mainly because of the lack of internal space in the turret which hindered operating the gun. The 603rd, 704th and 705th Tank Destroyer Battalions, who were part of George Patton's Third Army, were equipped with M18s and took part in Operation Cobra in Normandy; as the war progressed more M18-equipped TD Battalions arrived in Europe. Only one of these battalions was deployed to the Pacific. The high tank-kill-to-loss ratio obtained by the M18 crews has been attributed to their training and dedication rather than the abilities of the M18. Post-war, the M18 saw service in various armies around the world.

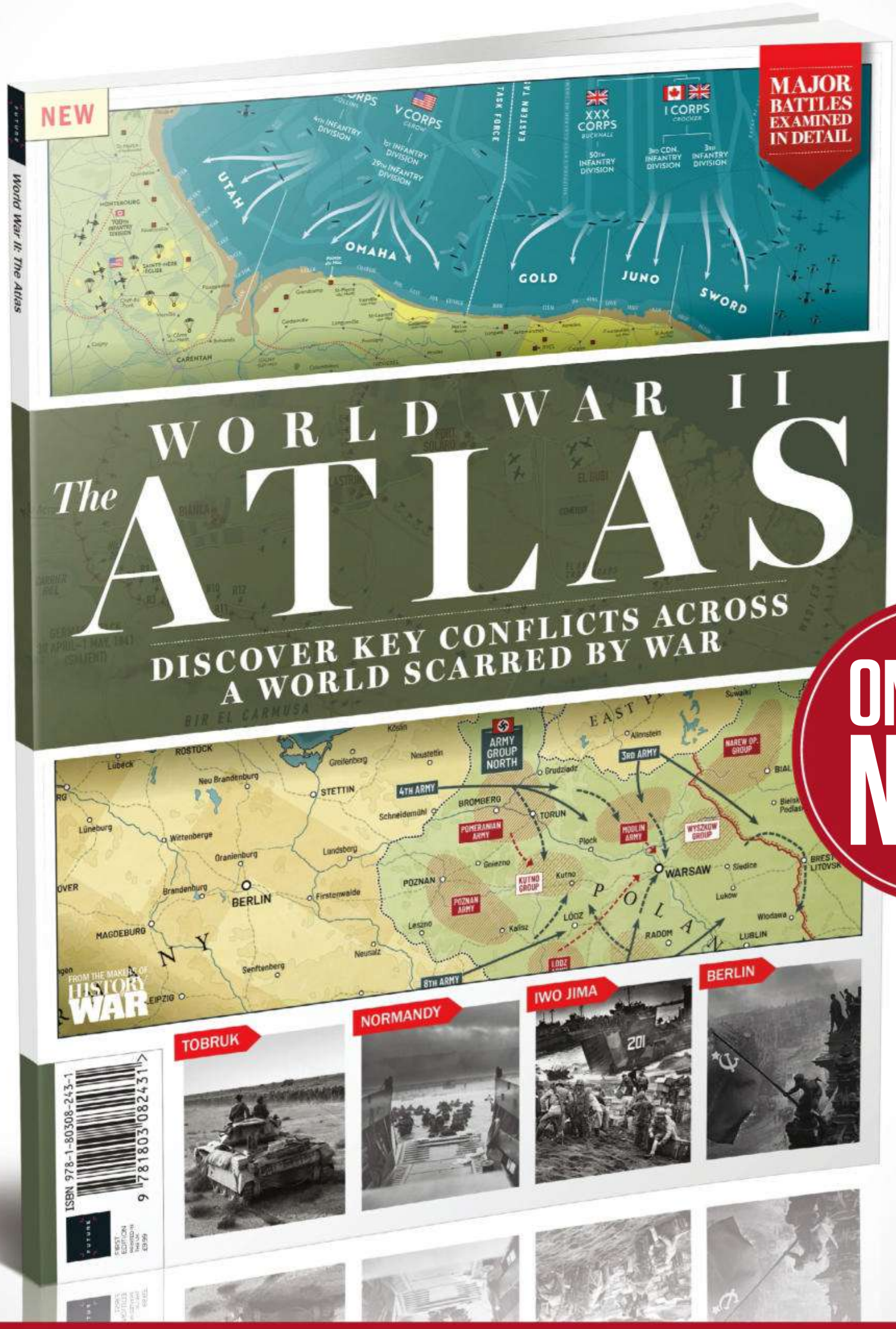
"THE M18 WAS EXCELLENT IN A RECONNAISSANCE ROLE DUE TO ITS SPEED BUT IT WAS NOT AS GOOD AS THE M10 IN A TANK-DESTROYING ROLE"

Limited space inside the M18 meant the crew had to strap their equipment to the outside of the vehicle

All images © Craig Moore / Getty

REWIND THE CLOCK AND EXPLORE A WORLD AT WAR

In this special edition bookazine from the makers of *History Of War*, explore the defining battles of the Second World War in detail, discover how pivotal leaders led their armies into fierce conflicts and much more



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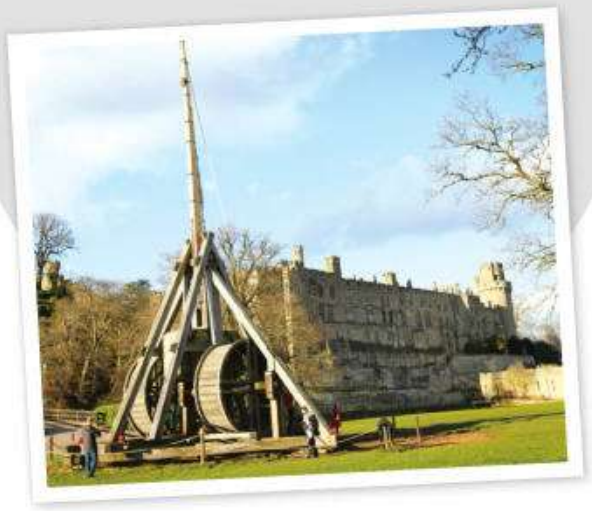

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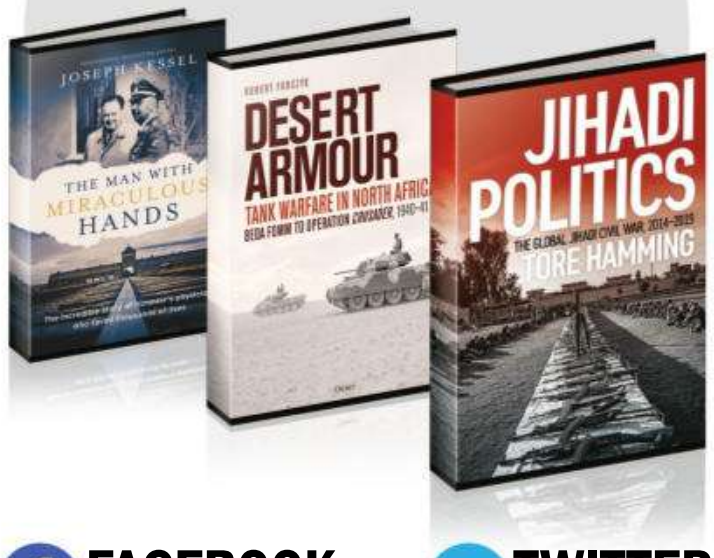

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HOW TO FIGHT A WAR

Q+A WITH DR MIKE MARTIN

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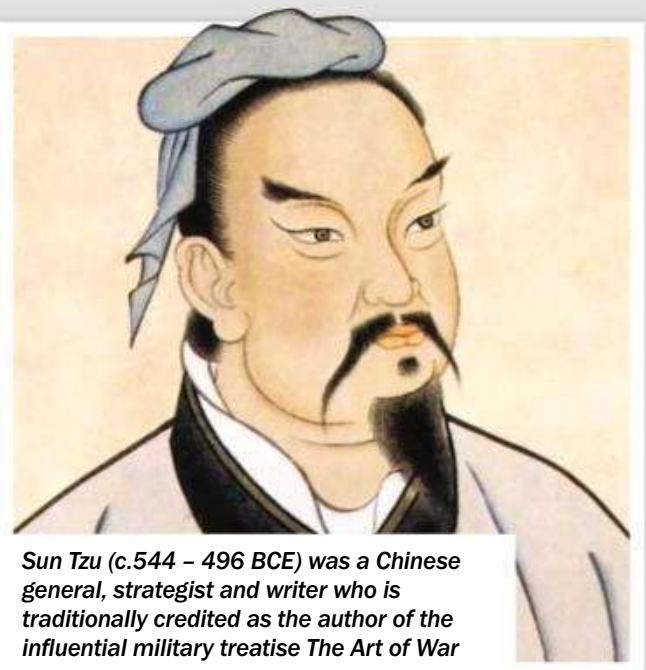
The former British Army officer and senior visiting fellow at King's College London reveals how and why wars are fought, from the ancient world to Ukraine and beyond

War is a complicated and destructive force that has consumed and bedevilled humanity for many thousands of years. Many commanders across history have made terrible decisions on how to conduct warfare, leading to innumerable military and civilian deaths and failures of geopolitical objectives that have led to more conflicts.

In his upcoming book *How to Fight a War*, conflict scholar and former British Army officer Dr Mike Martin takes the reader through the hard but elegant logic required to fight conclusive interstate wars that solves geopolitical problems and reduces the risk of future conflict. In cool and precise prose, he outlines how to orchestrate military forces, from infantry to information and from strategy to tactics.

Dr Martin, who is a senior visiting research fellow at the Department of War Studies at King's College London, discusses the importance of strategy, why land warfare is more decisive than its air and sea counterparts, his view on the most successful armed forces in military history and how nuclear weapons changed the nature of how powerful nations fight each other. He also reveals why he is convinced Ukraine will win its current war with Russia and how artificial intelligence will determine the course of military operations in the 21st century.



Sun Tzu (c.544 – 496 BCE) was a Chinese general, strategist and writer who is traditionally credited as the author of the influential military treatise The Art of War

At a fundamental level, why do human beings fight wars?

People generally say that religion or ideology cause wars. Certainly they are involved, but there is a much deeper layer. At a very fundamental level humans fight to achieve status or belong to cohesive social groups. These two drives are profoundly rooted in our psychology, having been developed by evolution over millions of years.

In evolutionary terms, it is only increases in social status (or maintaining or gaining membership of a cohesive group) that keep us safe. This has enough of a payoff to compensate for the high death rate that war entails. Put simply: on average, if you seek higher social status and actively maintain your participation in a social group, you will have more children and even accept the death rate that stems from war.

You have identified strategy, logistics, morale and training as the foundations for conducting a war. Which of these is the most important, and why?

A famous Chinese sage of war called Sun Tzu once said: "Strategy without tactics is the longest route to victory; and tactics without strategy is the noise before the defeat." Without a shadow of a doubt, a correctly formulated strategy based upon a sound understanding of your enemy (and of the world) is the most important.

Strategy is such a misused word – we see it cropping up everywhere. Everything has a strategy these days. Mostly, though, people mean 'plan' when they say 'strategy'. However, a strategy is so much more than a plan. A strategy is the bringing together of three elements. First, you have your goals or objectives – what you want to achieve. Second, you have the ways or plan which are going to achieve those goals, in other words we are going to invade 'X' country first, before attacking 'Y' country. And, finally, you have the resources with which you are going to achieve your goals using your plan.

British aerial bombing raids in Mandatory Iraq during the 1920s were an early attempt to prioritise air power over land troops

What you will find as you construct your plan is that you constantly move between these three elements – goals, plan and resources – by adjusting one as more information comes to light about the other two. Eventually, if you do this process correctly – all backed up with a sound understanding of the world (and the enemy!) – you will end up with a realistic resources plan. This, in other words, is a strategy.

What role do politics and psychology play in how wars are fought?

This is obviously an absolutely huge question. In one sense, politics and psychology are exactly the same thing. Put another way, psychology describes the way in which politics is constructed. Both are fundamentally about the relationships that humans have with each other. But what about war?

Another famous dictum, by the Prussian military theorist Carl von Clausewitz, states: "War is politics by other means." War is political. It is what we do when we have failed to solve our problems by talking. So what we are really saying is that war is psychological. It is a psychological contest for dominance. This is often as much between two leaders as it is between two nations, tribes or religions. And it is here that we start to see the importance of 'status seeking' as a motivation.

Quite a lot of time in the media you will see war and politics (or diplomacy) being treated as separate things. But really they aren't – they're just different points on the same continuum.

Why is warfare on land more important or critical to a military outcome than warfare at sea or in the air?

At the risk of annoying a lot of sailors or airmen and women, warfare on land is what is called 'decisive'. In simple terms, this is because humans live on land. Because war is about affecting your enemy's psychology you will eventually have to engage with the enemy and most probably the enemy's population. Sea and air (and now space) are seen as supporting arenas of war because they support the main effort on land.

This does not mean that you can't win a battle, or a short war, in the air or at sea.

A scene of Roman soldiers during the Dacian Wars from Trajan's Column in Rome

Carl von Clausewitz (1780 – 1831) was a Napoleonic Wars veteran whose most notable work, On War, is considered a seminal treatise on military strategy

"A CORRECTLY FORMULATED STRATEGY BASED ON A SOUND UNDERSTANDING OF YOUR ENEMY (AND THE WORLD) IS THE MOST IMPORTANT FACTOR"

But it does mean that if your enemy is utterly determined to resist you, or fight you, then eventually you will need to do battle with them on land. Wars of this type end when one side has its infantry in the other side's towns, villages and cities delivering administration.

In fact, there are a number of examples from history where powers have tried to circumvent this rule. Perhaps the best-known are the British attempts at aerial policing during the 1920s and 1930s. This was essentially an attempt to avoid paying for the cost of maintaining ground troops via bombing recalcitrant tribes and rebels in places like Somaliland and Mesopotamia (Iraq). However, the lesson from that era was that troops eventually needed to be sent in. You cannot bomb people into agreeing with you politically.

Who do you rate as the most successful practitioners of warfare in military history?

That's an excellent question and one that really has me thinking. We have to judge each practitioner within their time, and then look at whether their strategy, logistics and morale were consistently better than their opponents.

Looking at it this way, I think we can single out the Romans, who certainly created the greatest multi-ethnic empire of the ancient world. First, their strategy went well beyond just the vanquishing of enemies – it rested on their incorporation into the Roman Empire. Once conquered, you often became a citizen with all that this entailed, including joining the army to fight further enemies of Rome. Second, this was all underpinned by an extensive road network which was quantitatively and qualitatively better than anything else at the time. Finally, morale – although brutally enforced – was high and buttressed both by

Images © Alamy, Getty

Dr Martin considers the Allied commanders of World War II to be the most talented practitioners of warfare in modern times

frequent victories and the promise of land for soldiers when they retired.

In the modern world, I would cite the Allies during World War II. They had a brilliantly thought-out strategy to go for Germany first and then Japan. This was well-resourced and delivered through complex operations like the Normandy amphibious assaults. It was an extraordinary logistics system that was largely underpinned by the Americans, with steadfast morale that the war would end one day and that the Allies would be victorious.

What are the main factors that cause commanders or nations to lose wars?

In keeping with our theme of the fundamental importance of psychology in war, I would say that the main reason why commanders lose wars is their own cognitive biases. This causes them to view the world in an unrealistic, non-objective way.

The most common cognitive biases that leaders suffer from is hubris or overconfidence. As a leader, you need to be a confident person – almost by definition – and from there it is a short step to being overconfident. It takes just one or several decisions that luckily go their way to require many leaders to start to believe in their own hype.

This overconfidence then causes them to create or endorse strategies that are not realistic. For instance, thinking that they will be able to prosecute the war in a couple of weeks is a very common fallacy. Similarly, overconfidence can cause them to underestimate their enemy's capabilities or resolve. They can also underestimate how important simple things – like logistics – are for the prosecution of their own war effort. We saw all of these dynamics in Vladimir Putin's decision to invade Ukraine in 2022.

Another bias that crops up repeatedly is related to the human 'in-group, out-group' bias. This causes leaders to consider their own cultural milieu – like a particular system of government or a particular religion – as the norm, and all other forms of government as an aberration. This usually causes them to fatally underestimate their enemy or completely misunderstand the general world context.

How do the practitioners of war today differ from their counterparts in previous centuries?

That's another great question. In one sense they are not different at all. They are all trying to dominate the psychology of their enemy. Cognitively, humans haven't changed for tens of thousands of years and therefore the job of commander has little changed. This is why we see the same dynamics of bluff, retreat, advance, flank, ruse and so on in ancient battles as well as today's. It is also why modern militaries still go on battlefield tours of ancient battlegrounds.

But in another sense it has changed a huge amount. The technology of war has changed and is changing immensely. To be a modern general requires a strong working knowledge of a number of fields such as communications, intelligence, logistics planning, airspace management, information warfare, etc. This is over and above the psychology of getting the better of your opponent.

What these two things mean is that whereas it was previously possible for military commanders to be drawn from an elite with no education beyond perhaps the classics and religion, these days leading an army is a highly technical profession. Therefore, in serious modern militaries all officers are graduates and senior officers will have an advanced master's degree or even a PhD.

How have nuclear, biological and chemical weapons changed the way wars are fought?

Of those three, I would say that nuclear weapons have had the stand-out impact because they are so extraordinarily destructive. The largest-ever was 50 megatons and created a 67km-high

"THE MAIN REASON WHY COMMANDERS LOSE WARS IS THEIR OWN COGNITIVE BIASES. THIS CAUSES THEM TO VIEW THE WORLD IN AN UNREALISTIC, NON-OBJECTIVE WAY"

Future warfare will increasingly use artificial intelligence such as in drones like this US Navy saildrone pictured in the Gulf of Aqaba, 6 February 2022

A Ukrainian soldier holds an unmanned aerial vehicle during a training session at a base in the vicinity of Kyiv, 29 July 2022

mushroom cloud. They have completely changed the psychology of armed conflict.

For example, normally in war you want to shield your intentions from the enemy, or if you do signal to them it will often be a deception. The very opposite occurs in nuclear signalling. In that realm, even though some ambiguity is deliberately maintained (and deliberately communicated), countries are very careful about what signals they send to their nuclear adversaries.

Second, nuclear weapons draw big red lines around conflicts both geographically and in terms of escalation. This stops conflicts involving nuclear powers ever becoming total or existential, which might trigger the use of nuclear weapons. As awful as some modern conflicts are, such as Afghanistan or Ukraine, the existence of nuclear weapons stops them progressing into something even worse.

Looking at the other two types of weapons of mass destruction – biological and chemical – they definitely haven't had the same impact as nuclear weapons, even though they are all lumped together. Biological weapons are hard to weaponise effectively for military armed forces and even less so for terrorist groups. Chemical weapons, although indiscriminate and cruel, are largely confined to tactical battlefield uses rather than being able to have a strategic effect.

To what extent are the Ukrainians and Russians demonstrating how to both fight and not fight a war?

This war is going to be studied for a long time and all the things we've spoken about here are pertinent. Strategy: Russia's was unrealistic, driven by hubris and constantly shifting while Ukraine's is crystal clear. Logistics: the Russians are finding out that corruption destroys successful and efficient military logistics systems. Ukraine on the other hand is operating in its own country and is being supplied by the richest nations in the world. And finally morale: poorly trained conscript armies are simply no match for people defending their homelands.

In the actual prosecution of the war, the Ukrainians have consistently outfought the Russians, first by destroying their logistics and then by out-manoeuvring them on the battlefield. The Russians, for their part, have been fighting an attritional war reminiscent of WWI rather than a conflict in the 21st century.

To me it is very clear – as judged by clarity of strategy and performance on the battlefield – that Ukraine is going to win this war, providing that Western supplies continue to flow.

What does the future of warfare hold in the 21st century?

We are going through an era of unprecedented technological development, much of it highly applicable to the field of warfare. But although micro drones, energy-beam weapons and biologically enhanced soldiers will change the tools of warfare, its fundamental nature of a psychological contest for dominance will not change. Officers in the mid-21st century will still be studying battles from Ancient Greece.

There is, however, one technology that will change this fundamental nature of warfare. And it is the one that replaces the human brain in the equation: artificial intelligence.

At the moment, algorithms have widespread use in military systems to help, for example, find and prioritise targets. Eventually, as we progress technologically, it will be possible for military systems to find, target and kill humans. Although most militaries have ruled out the use of these so-called 'killer robots', it is not clear that they will forever remain out of use.

The next step beyond this is a kind of general AI that is able to run the war for you, much more efficiently and speedily than humans can – a strategic brain, if you will. But at this point, we will have replaced what makes war war: the human brain. It is not clear what war will actually look like, or be, by this point. And that, to me, is utterly terrifying.

The Russo-Ukrainian War has consistently proved the Ukrainian armed forces' superiority in strategy, logistics, tactics and morale against their Russian counterparts

How to Fight a War by Dr Mike Martin is published by Hurst Publishers and will be released on 30 March 2023. For more information visit: **www.hurstpublishers.com**

Images © Alamy, Getty

MUSEUMS & EVENTS

Discover Warwick Castle's plans for a new trebuchet, an Iron Age hill fort museum and the Jewish contribution to British military history

Rebuilding the trebuchet

Trebuchet masters dress in the uniforms of soldiers from the Wars of the Roses in tribute to one of the castle's most famous owners – Warwick the Kingmaker

All images © Merlin Entertainments/White Tiger PR

The huge trebuchet is positioned by the banks of the River Avon in the grounds of Warwick Castle

Warwick Castle is replacing its internationally famous medieval siege engine with a new, historically accurate replica that will be constructed by award-winning carpenters

One of the highlights of visiting Warwick Castle is its world-famous replica trebuchet. It is currently the world's largest example of this particular type of war machinery and replicates original designs from the 13th and 14th centuries. For more than a decade, it has wowed visitors to Warwick who would watch specially trained trebuchet masters launch projectiles into the air. In recent years it has been out of action, with the current trebuchet being removed and dismantled. However, Warwick Castle is pleased to announce that the trebuchet is being brought back to life, giving visitors a chance to experience the jaw-dropping power of this historical war machine.

It has been confirmed that the siege machine is being replaced with a new working replica. This will enable the castle to once again unleash the power of the mighty trebuchet with a spectacular new show for all to enjoy.

The existing metalwork in the current trebuchet is being reused in the new machine and the castle has also appointed the award-winning designers Carpenter Oak to undertake the rebuild. Carpenter Oak not only built the current castle trebuchet but is also exceptionally experienced in re-creating historically accurate siege weapons, including a Roman ballista and Leonardo da Vinci's crossbow.

The new trebuchet will be made to the same specifications as the old one. It will be 18 metres tall, made from over 300 pieces of oak and weigh 22 tonnes. All the wood used is oak, except for the arm which is made from ash. The machine is capable of launching projectiles up to 250 metres.

Work on the replacement includes sourcing specialist wood from France and will see the carving of the wooden structure's parts at Carpenter Oak's specialist workshop. It will then be moved to the castle's 'River Island' where on-site construction is expected to take 10 weeks. It is hoped the new trebuchet will be launched to the public in a live show at the castle in spring 2023.

Liam Bartlett, operations director at Warwick Castle, says: "For many years the trebuchet has been one of our most popular attractions and families would flock to see this exciting piece of authentic history in action. However, years of launching heavy projectiles hundreds of metres took its toll and the wear and tear got to the point where it was no longer safe to operate. We are delighted to be able to make this substantial investment to replace it and once again showcase this masterful piece of machinery. I can't wait to see it unleashed again with a brand new show and I know our many visitors will feel the same."

For the full calendar of events and shows at Warwick Castle visit: www.warwick-castle.com/explore/events

Defending Danebury

The story of an ancient hill fort in Hampshire is told at the Museum of the Iron Age in Andover

Located to the southwest of Andover, Hampshire, Danebury is an Iron Age hill fort. Covering five hectares (12 acres), it was built in the 6th century BCE and used as a military site for almost 500 years. This was a period when the number of hill forts in southern England greatly increased and Danebury itself was remodelled several times to make it a more complex fortification. Extensively excavated by Professor Sir Barry Cunliffe during the 1960s-80s, it is one of the best-studied sites of the British Iron Age.

Danebury is now a Scheduled Monument and designated Local Nature Reserve and its history is told in the Museum of the Iron Age in Andover. Situated across two floors, the museum tells the fort's story using artefacts alongside reconstructions based on discoveries made during the excavations. Visitors can learn about life inside the fort including defence, home life, farming and religious beliefs.

One of the highlights of the museum is the Fullerton Mosaic. This floor decorated the main room of a Romano-British villa in the nearby village of Fullerton and depicts the Roman god Mars as a warrior in his role as a protector of agriculture. There is also a reconstruction of a wattle-and-daub roundhouse that gives an impression of what domestic life was like inside Danebury.

During the Middle Ages it was variously believed that Danebury was built by Julius Caesar, Alfred the Great, Vikings and even King Arthur or giants

For more information visit: www.hampshireculture.org.uk/museum-iron-age

Jewish Military Museum

With thousands of objects in its collection, this unique museum commemorates the services and sacrifices of Jews in Britain's armed forces

Located in Camden Town, the Jewish Museum London tells the story of British Jewish life, history and identity. As well as containing an international-level collection of Jewish art and artefacts, the Jewish Museum has also been the home to the Jewish Military Museum since 2015. Containing over 5,000 objects, the Military Museum is a treasure chest of fascinating history and memorabilia belonging to Jewish servicemen and women who fought and often lost their lives serving their country at war.

The collection includes personal diaries, letters, medals, uniforms and souvenirs. Key objects include Thomas Gould's Victoria Cross, which was awarded to him for bravery on the submarine HMS Thrasher during WWII. Other awards include the medals of Corporal Henry Jessell, who fought in the Crimean War. Jessell's medals from the 1850s are the oldest in the collection but he lived until his late nineties to lay a wreath at the Cenotaph in 1928.

There are also fascinating documents such as handwritten posters by Reverend Michael Adler, the first Jewish chaplain to serve on the front line during WWI. Other WWI artefacts include the diary of Florence Greenberg (née Oppenheimer) who served as a hospital ship nurse during the Gallipoli Campaign. Visitors can additionally access the WWI online resource For King and Country as well as the Remember Me learning workshop for primary and secondary school students.

Members of 1st Battalion Jewish Brigade in the British Army, c.1944

Images © Alamy

The Jewish Museum London is located on Albert Street, a few minutes' walk from Camden Town Tube Station

For more information visit: www.jewishmuseum.org.uk/the-jewish-military-museum

WWII THIS MONTH...

FEBRUARY 1943

To commemorate 80 years since the Second World War, **History of War** is taking a look at some of the key events during each month of the conflict

SURRENDER AT STALINGRAD

The bloodiest battle in history ended on 2 February 1943 when the surrounded German 6th Army surrendered to Soviet forces at Stalingrad. The Germans had been pushed into a defensive pocket and were starving and short of ammunition. Adolf Hitler refused 6th Army's commander, Friedrich Paulus, permission to surrender and even promoted him to field marshal.

Paulus nevertheless surrendered to the Soviets on 31 January, with his subordinate General Karl Strecker holding out for two more days. When Strecker finally surrendered he sent the last signal from Stalingrad saying "Long live Germany!" rather than "Heil Hitler!"

Approximately 91,000 German soldiers were captured, including 22 generals. The Battle of Stalingrad's casualties were apocalyptic and included losses of c.1,100,000 Soviet and c.800,000 Axis soldiers along with c.40,000 civilians.

Images © Alamy

SPORTPALAST SPEECH

On 18 February 1943, Joseph Goebbels delivered an infamous speech at the Berlin Sportpalast to a large, carefully selected audience. Occurring soon after the German capitulation at Stalingrad, he declared total war against the Allies underneath a banner that said: "TOTAL WAR – SHORTEST WAR."

The speech, although bombastic, was the first time the Nazi Party leadership tacitly admitted that the conflict was not going well. Goebbels explained: "We cannot overcome the Bolshevist danger unless we use equivalent, though not identical methods [in a] total war." He also accidentally revealed the Nazis' true intentions towards Europe's Jews: "Germany has no intention of bowing to this Jewish threat, but rather confronting it if need be in terms of complete and most radical extermin[ation]… exclusion of Judaism."

Goebbels' own title for his Sportpalast speech was 'Nation, Rise Up, and Let the Storm Break Loose'

Some of the 91,000 emaciated German prisoners who surrendered at Stalingrad in February 1943

WHITE ROSE EXECUTIONS

Founded in June 1942, the White Rose was a non-violent resistance group at the University of Munich. Arguably the most famous German resistance group during WWII, its five leaders included brother and sister Hans and Sophie Scholl. The group conducted an anonymous leaflet and graffiti campaign against the Nazis until the leaders were arrested by the Gestapo on 18 February 1943. The White Rose leaders were subjected to show trials by the Nazi People's Court, with many of them sentenced to death or imprisonment. The Scholl siblings and Christoph Probst were executed by guillotine four days after their arrest on 22 February 1943. The White Rose members are considered heroes worldwide for their courage against the brutal regime.

The White Rose pavement memorial at the front of the University of Munich

US soldiers of 2nd Battalion, 16th Infantry Regiment clear mines as they walk through the Kasserine Pass after their defeat, 26 February 1943

BATTLE OF KASSERINE PASS

Fought in the Grand Dorsal chain of the Atlas Mountains in Tunisia, the Battle of Kasserine Pass was the first major engagement between American and Axis forces in North Africa, during 19-24 February 1943. German and Italian troops numbering 22,000 and commanded by Erwin Rommel faced 30,000 American, British and Free French soldiers that were dominated by the US II Corps commanded by Major General Lloyd Fredendall.

Despite their numerical superiority, the inexperienced Americans were forced back by Rommel, who pushed through their defensive lines at Kasserine Pass. The Allies were driven back 80km from their original positions. The Americans suffered losses of 3,000 killed and wounded with a further 3,000 captured. US II Corps also lost hundreds of tanks, vehicles, guns and large amounts of fuel and ammunition.

Joint Base Andrews, the home of Air Force One near Washington DC, is named in honour of Frank M Andrews

APPOINTMENT OF ANDREWS

Dwight D Eisenhower is famed for his Allied leadership in Europe during WWII. However, on 5 February 1943 he relinquished command of American forces in Europe to Lieutenant General Frank M Andrews while he led the Allied effort in North Africa.

A senior US Army officer, Andrews was one of the founders of the US Army Air Force. His aviation expertise was brought to bear when he assumed the European command and declared from his London HQ: "My first job is to increase and intensify the bombing of the enemy." It was Andrews who launched the markedly escalated American daylight bombing of Germany but he was killed in a plane crash in Iceland during an inspection tour on 3 May 1943. By the end of the year Eisenhower had been announced as the Supreme Allied Commander in Europe.

REVIEWS

Our pick of the latest military history books

JIHADI POLITICS

A RECONSTRUCTION OF THE BLOODY INFIGHTING WITHIN THE GLOBAL JIHADI MOVEMENT THAT SET AL-QAEDA AGAINST ISLAMIC STATE, WITH CONSEQUENCES THAT ARE STILL FELT TODAY

Author: Tore Hamming **Publisher:** Hurst **Price:** £30 (Hardback) **Released:** Out now

Tore Hamming's analysis of militant Islamic fratricide is a meticulously researched account of intra-jihadi conflict, seen through the jihadis' own lens. The author, who is director of Refslund Analytics at King's College London, has conducted on-the-ground research on his subject throughout the Middle East and Africa, in countries where jihadi fighting was at its most violent during the 2014-19 civil war period.

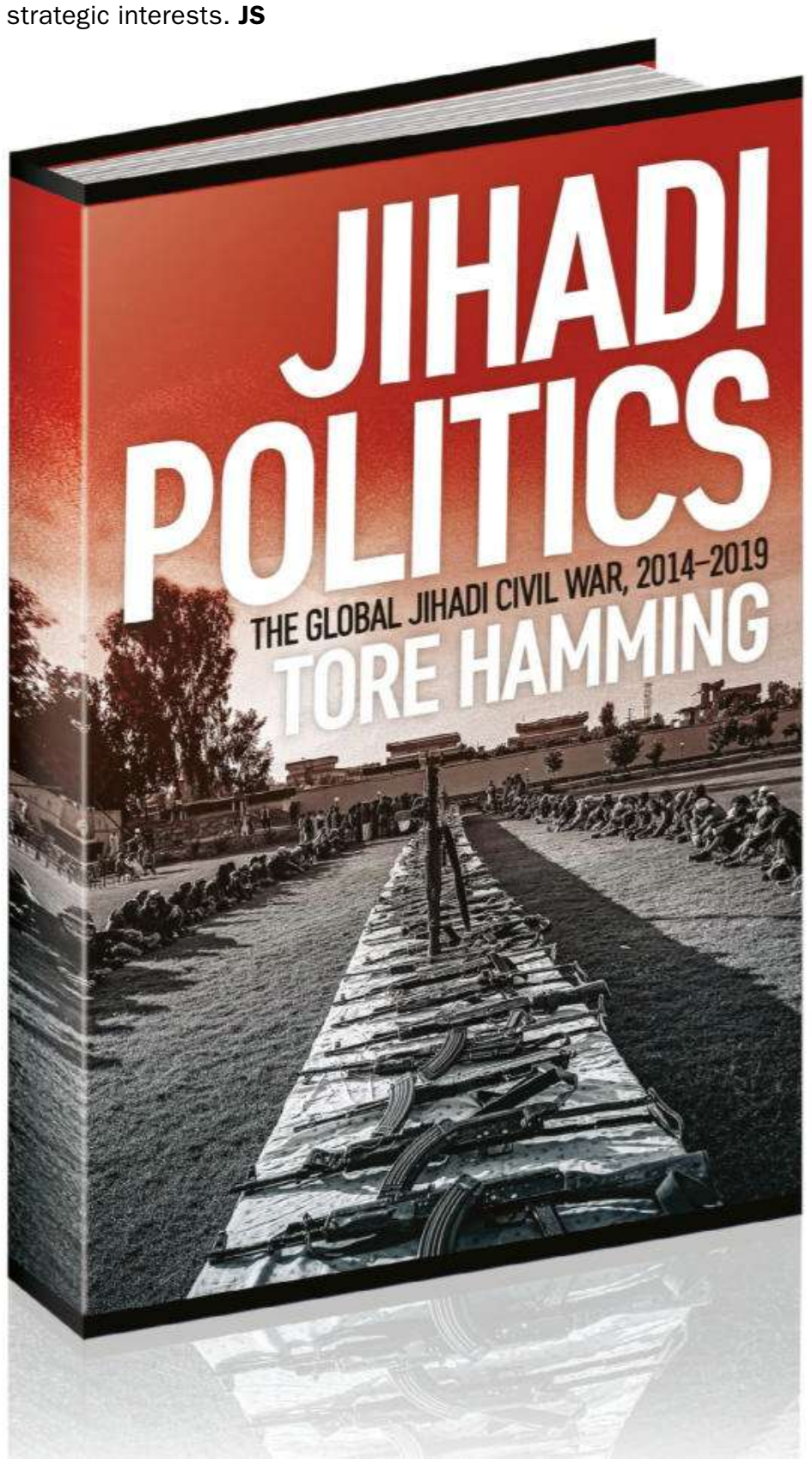
What took place in the jihadi movement during those five years was a counterintuitive and self-destructive sequence of infighting among groups engaged in a struggle to destroy a common enemy, namely the West. Hamming brings to light the ideological paradox that set al-Qaeda against Islamic State, two factions that on the surface would appear to have had everything in common. Another riddle addressed in the narrative is precisely what tore apart a movement that had a lot more to be gained by uniting forces against their foe. "Would collaboration with like-minded associates against a common enemy not be a wiser strategy?" asks the author. The book takes the reader through the beginnings of the jihadi crusade, starting in the early 1960s with its ideological foundation in the Muslim Brotherhood. The second current, the so-called solidarity jihad, began in 1979 and lasted until the mid-1990s, focusing its attention on the anti-Soviet struggle in Afghanistan. What is referred to in the West as global jihad marked the third and most widespread outbreak of jihadi terror and open warfare, now with the United States and not Israel as the principal enemy.

Jihadi leaders are aware of the counterproductive dangers posed by fitna, or internal conflict, which diverts their action from the primary adversary and deprives the militants of precious resources. As recently as June 2019, a senior al-Qaeda fighter warned of the perils of giving the kuffar (unbelievers) the opportunity to laugh at them. Yet the bickering and allegations persist and, according to the author, the pressing question is how the jihadis will attempt to manage internal tensions and rivalry. The challenge they face is how to ensure that fratricidal conflict doesn't spiral out of control to the extent it threatens to destroy the jihadi project.

Events post-2019 illustrate a replay of earlier inner turmoil, underlining the fact that the struggle between factions is likely to continue. The year 2020 had only just begun when the situation in the Sahel in Africa exploded. A tenuous coexistence had been worked out between the local Islamic State and al-Qaeda affiliates, but in early January tensions started to manifest themselves in the form of skirmishes between militants. In Nigeria, the already uneasy situation between Islamic State West Africa (ISWA) and Boko Haram began to escalate. Then, following the surprising Taliban takeover in Afghanistan in August 2021, it was not long before infighting between the new Islamist rulers and their rival, Islamic State Khorasan Province (ISKP), flared up once again.

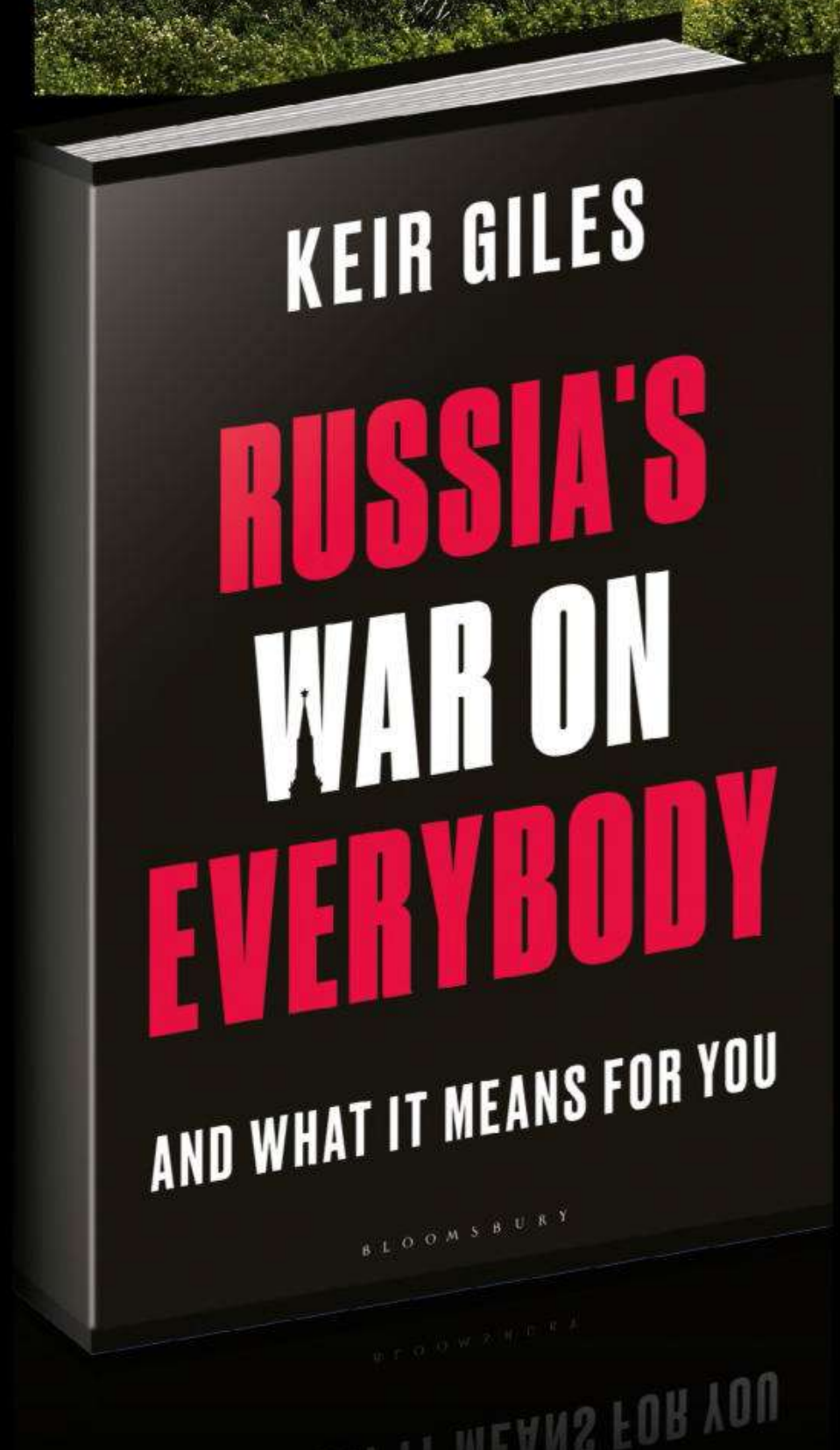
Hamming says that many of the jihadis acknowledge the necessity of change in order to adjust to the evolving political and social environment. They all recognise the importance of popular support for their movement, but the challenges arise when this is combined with the need to align such support with religious principles and political and strategic interests. **JS**

"WHAT IS REFERRED TO IN THE WEST AS GLOBAL JIHAD MARKED THE THIRD AND MOST WIDESPREAD OUTBREAK OF JIHADI TERROR"



RUSSIA'S WAR ON EVERYBODY

A view of Severodonetsk, Ukraine, during heavy fighting in May 2022



Images © Getty

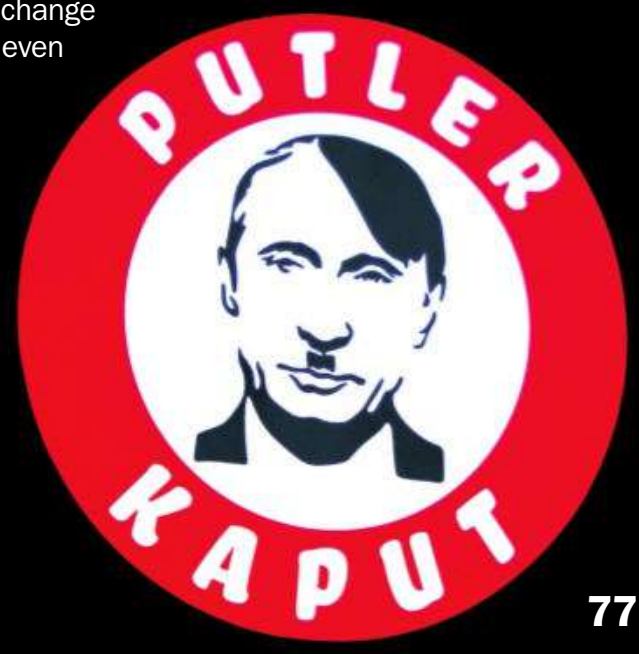
Author: Keir Giles **Publisher:** Bloomsbury
Price: £20 (Hardback) **Released:** Out now

THE STORY OF RUSSIAN AGGRESSION AND HOW AND WHY MOSCOW PUSHES FOR POWER AND INFLUENCE FAR BEYOND UKRAINE

Russia analyst Keir Giles offers a narrative built around people and historical events that have been directly impacted by Moscow's ambition to exert power wherever it can. The author emphasises that his book deals with a country, not ordinary Russians living within its borders. He exposes the fact that Russia's behaviour under Vladimir Putin is returning to what was normal in the Soviet era and even further back into Tsarist times.

Giles asserts that Moscow's Cold War actions ring instantly true today. He makes the point that puzzling out Moscow's true motivations and intentions remains a key challenge for policy-makers and the problem of 'mirror-imaging' has repeatedly caused confusion and misunderstanding among Western leaders. It is revealing that as soon as Putin became president in 2000, one of his first orders was to restore the Soviet national anthem.

The nature of Russia's relationship with neighbouring countries formerly under its control lies at the root of tensions between Russia and the West, and the suffering and turmoil Putin has inflicted on these countries and across the world is no secret. The invasion of Ukraine, Giles says, will not mark a change in the nature of the Russian threat, even if Putin suffers defeat. "It takes far more than a change of ownership in the Kremlin to alter Russia's fundamental attitudes of what it is entitled to and how it goes about getting it," the author says. There remains the danger that what comes after the war in Ukraine could be even worse. Putin's clearly stated aim is not likely to stop Russia's drive to reconquer its former possessions. **JS**



DESERT ARMOUR

TANK WARFARE IN NORTH AFRICA

FROM BEDA FOMM TO OPERATION CRUSADER 1940-41, THIS THOROUGH STUDY OF ARMOURED WARFARE IN THE WESTERN DESERT IS A WORTHY ADDITION TO ANY ENTHUSIAST'S SHELF

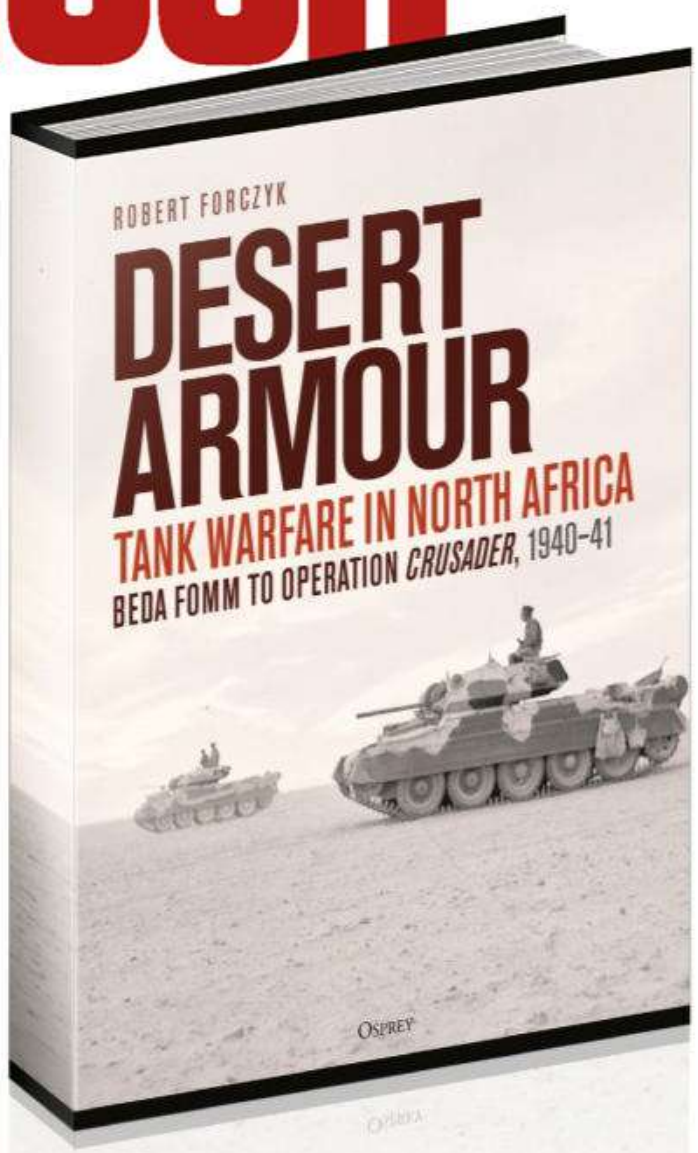
Author: Robert Forczyk **Publisher:** Osprey Publishing **Price:** £35 (Hardback)

We've read many books on World War II's North African campaign and Operation Crusader, and we thought this book would be more of the same: a lot of text, a few photographs and some maps. So we were pleasantly surprised to find it was a totally different format. Most books on this period of military history start in June 1940 with the Italian declaration of war but author Robert Forczyk in his first chapter goes into detail about the drastically different pre-war doctrine on the use of armour adopted by the British, American, Italian and Germans. He examines the technological differences in each side's armoured force and how they intended to deploy them. This is very refreshing as it gives the reader a good background into the strengths and weaknesses of all the forces before battle commenced.

As this is an Osprey book the author has been able to include many of the high-quality full-colour illustrations used in its New Vanguard book series on armoured fighting vehicles to depict the different vehicles that took part in the fighting in the North African desert. There are lots of colourful maps depicting the movement of opposing forces, and the author has included a selection of wartime black and white photographs of the conflict from his private collection and also from the archives of the Imperial War Museum.

He has used tables to make it easier to understand the difference between the four nations' armour doctrines on an operational and tactical level, so comparisons are much easier. He has also used tables to help compare the production tank programmes of different countries that includes information such as the date of requirement, the developer's name, the appearance of the first prototype, the date of production and the cost. By doing this the reader can see which country had the most effective manufacturing base to produce armoured vehicles. We like the way the author has included military unit organisational diagrams so readers can understand the structure of each opposing force.

Chapter three covers the confrontation between Italian forces and the British, the effects of artillery and the nearly impenetrable armour of the Matilda II tank. The fourth chapter follows the arrival of the German Afrika Korps tanks in Tripoli in late February 1941 and the subsequent attacks by Erwin Rommel's forces along with his Italian allies. The effect of the welcome arrival of the first batch of American-built Lend-Lease M3 Stuart light tanks in Egypt in July 1941 is also discussed. The US was not a belligerent at this stage of the war, but this delivery of tanks was followed by the unloading of ships containing more M3 Stuart light tanks and M3 Lee/Grant medium tanks. The battles of Sidi Barrani, Beda Fomm, Marsa El Brega, Operation Brevity, Operation Battleaxe and Operation Crusader are covered in detail. We heartily recommend this book on the early part of the desert war as a terrific addition to your library. **CM**



"IT GIVES THE READER A GOOD BACKGROUND INTO THE STRENGTHS AND WEAKNESSES OF ALL THE FORCES BEFORE BATTLE COMMENCED"

8th Army soldiers take the surrender of German forces, December 1941

© Getty

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Heinrich Himmler pictured with masseur Felix Kersten, 1944

THE MAN WITH MIRACULOUS HANDS

THE REMARKABLE STORY OF HEINRICH HIMMLER'S PHYSICIAN, FELIX KERSTEN, WHO SAVED MANY NAZI VICTIMS FROM THE FANATICAL BUTCHER AND FORCED HIM TO BETRAY ADOLF HITLER

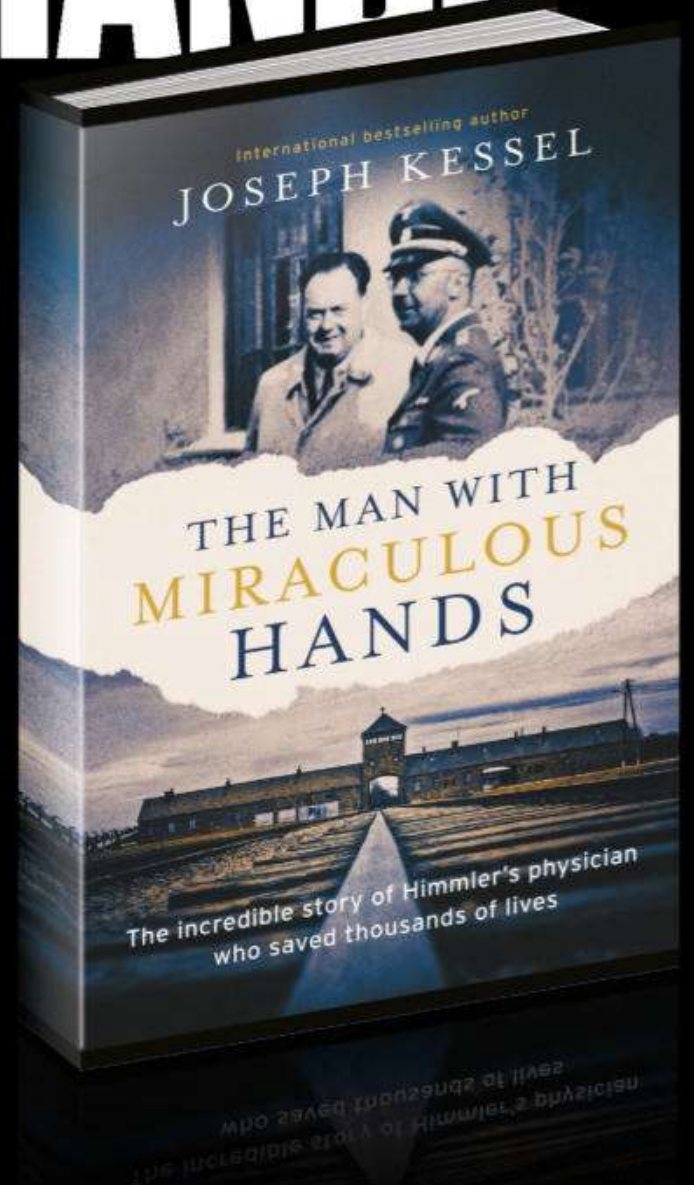
Author: Joseph Kessel **Publisher:** Elliott & Thompson
Price: £20 (Hardback) **Released:** March 2023

The remarkable story of Dr Felix Kersten reveals some of the most astonishing and largely unknown inner workings of Nazi Germany and one of its most notorious wartime leaders. Heinrich Himmler, Reichsführer of the Waffen-SS and a key architect of the Holocaust, was a man who could unflinchingly order the removal of 5,000 Allied prisoners of war from their camps to have them summarily executed. This order, happily, was not carried out.

Kersten came to be the main restraining force in this fanatical demon's entourage. He was a Baltic German who found himself reluctantly pulled into the Nazi corridors of power to serve as Himmler's personal therapist. He gained Himmler's trust, thanks to his skills that helped alleviate the Reichsführer's chronic stomach pains. Eventually, Himmler came to rely body and soul on Kersten's medical talents.

One of the most extraordinary incidents in this physician-patient relationship came shortly before the German surrender, when Kersten persuaded Himmler to meet with a representative of the World Jewish Congress. This meeting took place after Himmler had left a party with Hitler to celebrate the Führer's birthday. Through Kersten's good offices, it was agreed that several thousand Jews would be freed from concentration camps. He also obtained a guarantee to spare the lives of the 60,000 remaining in captivity.

At no small risk to his personal safety, Kersten throughout the war years had dominated Himmler to the extent of saving hundreds of thousands of human lives. **JS**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The incredible story of Himmler's physician who saved thousands of lives

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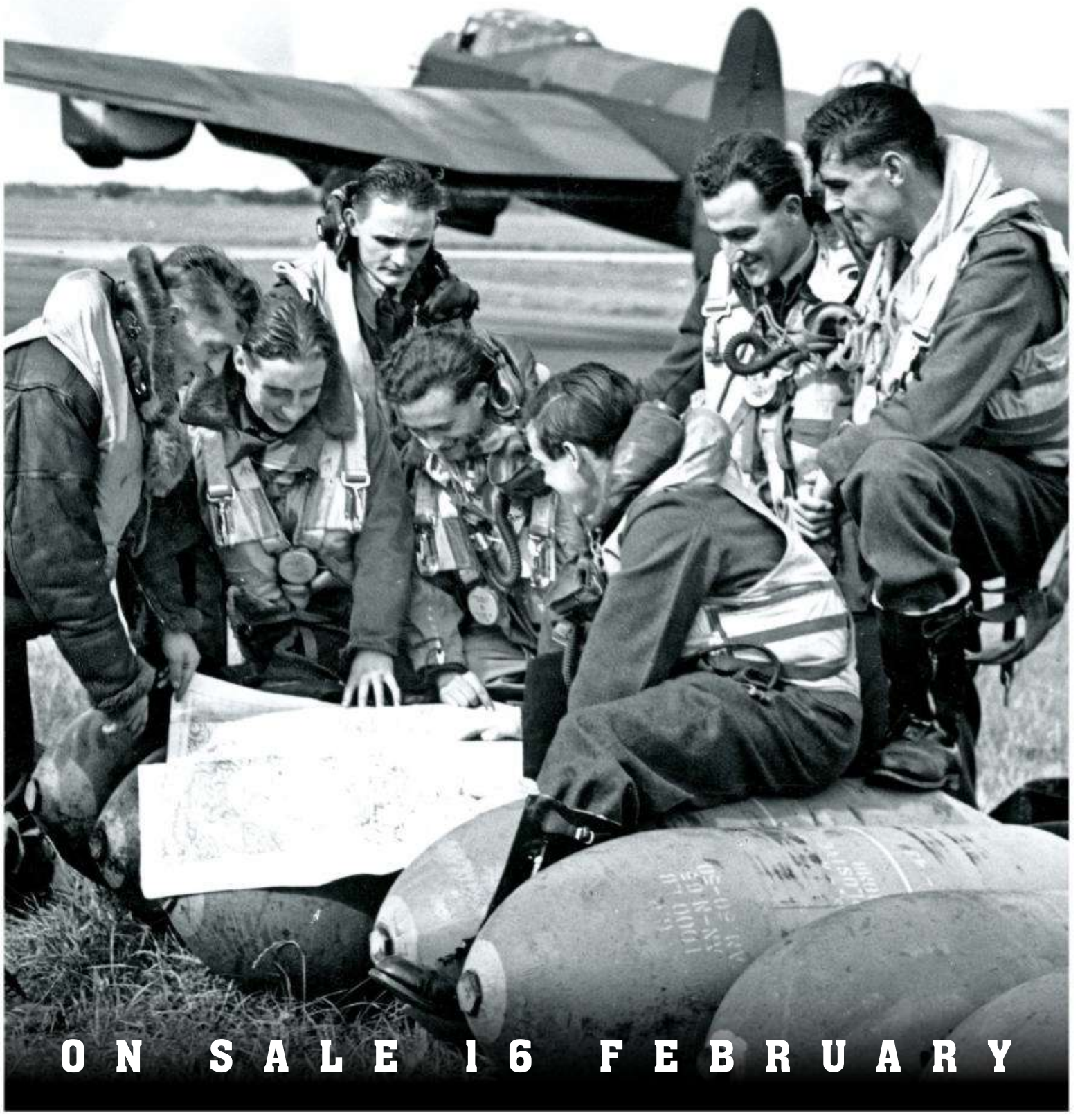
Inside the RAF raids that laid the ground for Operation Overlord and the liberation of Europe



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APPOMATTOX CHAIRS & TABLE

The furniture used by Ulysses S Grant and Robert E Lee as they ended the American Civil War

On 9 April 1865, Generals Ulysses S Grant and Robert E Lee met at the village of Appomattox Court House, Virginia, to negotiate the surrender of the Confederate Army of Northern Virginia to the US Army. The opposing commanders faced each other in the home of grocer Wilmer McLean and used his furniture as they hammered out the details.

Lee sat in the chair on the left and discussed the condition of his soldiers while Grant offered generous terms from the chair on the right. The Confederate troops would not be punished for treason and were allowed to go home with their side arms, horses and personal items. Grant used the table to draft the final terms of surrender, which both men signed. This marked the end of the American Civil War that had raged since 1861.

Appomattox was one of the most significant events in US history and was immediately recognised as such by the Union officers present in McLean's house. Three of them, including Philip Sheridan, stole the chairs and table but over the following decades the items were donated to the Smithsonian Institution.

Grant later wrote in his *Personal Memoirs* that while he admired the fighting qualities of the Confederates he condemned them for fighting to maintain slavery: "[They] had fought so long and valiantly, and had suffered so much for a cause, though that cause was, I believe, one of the worst for which a people ever fought, and one for which there was the least excuse."

This stylised painting omits the detail that while Lee was dressed in his ceremonial white uniform, Grant's clothes and boots were covered in mud from nearby fighting

Image: Alamy

Grant recalled in his Personal Memoirs: "We greeted each other, and after shaking hands took our seats. What General Lee's feelings were I do not know… as he was a man of much dignity"

NATIONAL MUSEUM OF AMERICAN HISTORY
BEHRING CENTER

The Appomattox chairs and table are exhibited in the National Museum of American History in Washington

www.americanhistory.si.edu

Image: Smithsonian Institution

HOPE AND HOMES FOR CHILDREN

URGENT APPEAL

Russia's brutal invasion of Ukraine is not just a humanitarian crisis for the Ukrainian people; it's a child protection emergency.

Up to 100,000 children warehoused in Ukraine's vast orphanage system – a network of over 700 buildings – risk being forgotten. Left to face the dangers of war alone as staff flee. As families are torn apart or forced from their homes, many more children are at risk of being separated from the love and protection they desperately need. Worse still, they are at risk of trafficking, or being placed in overcrowded, understaffed and poorly resourced orphanages in border countries.

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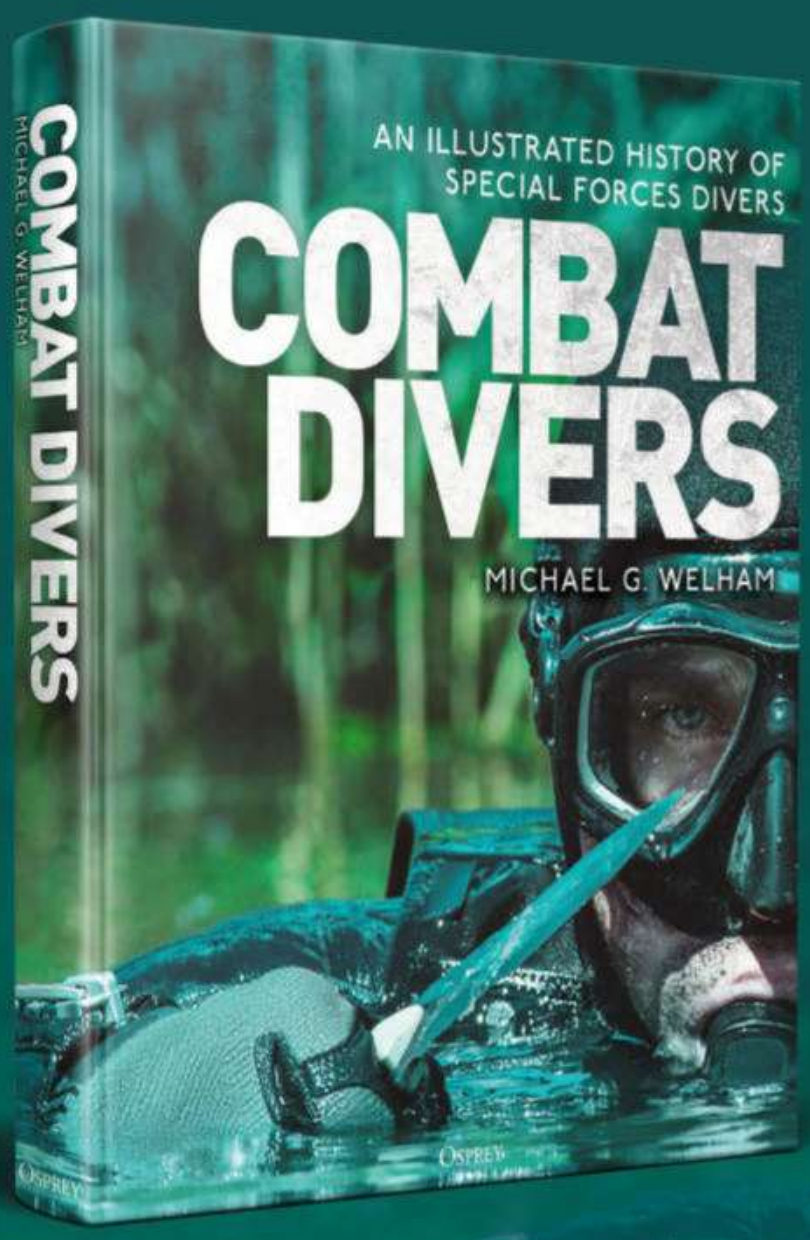
AN ILLUSTRATED HISTORY OF SPECIAL FORCES DIVERS

COMBAT DIVERS

MICHAEL G. WELHAM



From the operatives in World War II to the present day, this book offers a timely illustrated history of the combat diver, including rare and unusual photographs throughout.

Former Royal Marines Commando Michael G. Welham reveals the dangerous missions, unique equipment and secretive world that define the combat diver.

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